

# BAXI

## LUNA 3 SILVER SPACE

IT

**caldaie murali ad alto rendimento destinate all'esterno**

manuale per l'uso destinato all'utente ed all'installatore

EN

**high efficiency wall-mounted gas-fired boilers for external use**

operating and installation instructions

EL

GR

**υψηλης αποδοσης επιτοιχιοι λεβητες αεριου εξωτερικου χωρου**

εγχειριδιο χρησης για το χρηση και τον εγκαταστατη

**CE** 0051

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Dear Customer,

We are confident your new boiler will meet all your requirements.

All **BAXI** products have been designed to give you what you are looking for: good performance combined with simple and rational use.

Please do not put away this booklet without reading it first as it contains some useful information which will help you to operate your boiler correctly and efficiently.

Do not leave any packaging (plastic bags, polystyrene, etc.) within the reach of children as they are a potential source of danger.

**BAXI S.p.A.** declares that these models of boiler bear the CE mark in compliance with the basic requirements of the following Directives:

- Gas Directive 2009/142/EC
- Efficiency Directive 92/42/EEC
- Electromagnetic Compatibility Directive 2004/108/EC
- Low Voltage Directive 2006/95/EC



## ATTENTION

- A gas tap must be fitted upline from the appliance in a visible and easily accessible place.
- **The on/off valve in the boiler (fig. 6) must always stay open to allow the system to be filled automatically.**



**BAXI S.p.A.**, a leading European manufacturer of hi-tech boilers and heating systems, has developed CSQ-certified quality management (ISO 9001), environmental (ISO 14001) and health and safety (OHSAS 18001) systems. This means that BAXI S.p.A. includes among its objectives the safeguard of the environment, the reliability and quality of its products, and the health and safety of its employees.

Through its organisation, the company is constantly committed to implementing and improving these aspects in favour of customer satisfaction.



# CONTENTS

## INSTRUCTIONS FOR USERS

1. Instructions prior to installation	44
2. Instructions prior to commissioning	44
3. Commissioning the boiler	45
4. Special functions	50
5. Filling the system	52
6. Turning off the boiler	53
7. Gas conversion	53
8. Prolonged shutdown. Frost protection (central heating circuit)	53
9. Troubleshooting	53
10. Routine maintenance instructions	54

## INSTRUCTIONS FOR FITTERS

11. General information	55
12. Instructions prior to installation	55
13. Installation	56
14. Installing the boiler	56
15. Contents of pack	57
16. Filling the system	58
17. Installation of flue and air ducts	60
18. Connecting the mains supply	66
19. Installing the remote control unit	68
20. Gas conversion methods	68
21. Information and advanced settings mode	70
22. Parameter settings	72
23. Adjustment and safety devices	73
24. Positioning the ignition and flame-sensor electrode	74
25. Checking combustion parameters	74
26. Output / pump head performance	74
27. Connecting the external probe	75
28. Electrical connections to a zone heating system	76
29. Removing scale from the DHW circuit	76
30. Dismounting the water-water heat exchanger	76
31. Cleaning the cold water filter	77
32. Annual maintenance	77
33. Boiler diagram	78
34. Illustrated wiring diagram	79
35. Technical data	80

# 1. INSTRUCTIONS PRIOR TO INSTALLATION

This boiler has been designed to heat water to a temperature lower than boiling point at atmospheric pressure. It must be connected to a central heating system and to a domestic hot water supply system according to its performance and power output.

Before having the boiler installed by a qualified service engineer, make sure the following operations are performed:

- a) Make sure that the boiler is adjusted to use the type of gas delivered by the gas supply. To do this, check the markings on the packaging and the rating plate on the appliance.

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- b) Make sure that the flue terminal draft is appropriate, that the terminal is not obstructed and that no exhaust gases from other appliances are expelled through the same flue duct, unless the latter has been specially designed to collect exhaust gas from more than one appliance, in compliance with current laws and regulations.

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- c) Make sure that, if the boiler is connected to existing flue ducts, these have been thoroughly cleaned as residual products of combustion may detach from the walls during operation and obstruct the flow of fumes.
- d) To ensure correct operation and maintain the warranty, observe the following precautions:

## A. DHW circuit:

- a.1. If the water is harder than 20 °F (1 °F = 10 mg calcium carbonate per litre of water), install a polyphosphate dispenser or an equivalent treatment system, compliant with current regulations.
- a.2. Thoroughly flush the system after installation of the appliance and before use.
- a.3. The materials used for the domestic hot water circuit of the product comply with Directive 98/83/EC.

## B. Heating circuit

### b.1. new system

Before proceeding with installation of the boiler, the system must be thoroughly cleaned in order to eliminate residual thread-cutting swarf, solder and any solvents, using suitable proprietary products. To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non-alkaline. Recommended cleaning products:

SENTINEL X300 or X400 and FERNOX Regenerator for heating circuits. Use these products in strict compliance with the manufacturers' instructions.

### b.2. existing system:

Before installing the boiler, drain the system and clean it to remove sludge and contaminants, using suitable proprietary products as described in point b.1.

To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non-alkaline such as SENTINEL X100 and FERNOX Protector for heating circuits. Use these products in strict compliance with the manufacturers' instructions.

Remember that the presence of foreign bodies in the heating system can adversely affect boiler operation (e.g. overheating and excessive noise of the heat exchanger).

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**Failure to observe the above will render the guarantee null and void.**

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# 2. INSTRUCTIONS PRIOR TO COMMISSIONING

Initial lighting of the boiler must be carried out by an authorised Service Engineer who must first ensure that:

- a) the rated data correspond to the supply (electricity, water and gas) data;
- b) the installation complies with current laws and regulations;
- c) the appliance is correctly connected to the power supply and earthed.

The names of the authorised Service Centres are indicated in the attached sheet.

Failure to observe the above will render the guarantee null and void.

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***The instructions shall state the substance of the following:***


***This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.***


***Children should be supervised to ensure that they do not play with the appliance.***

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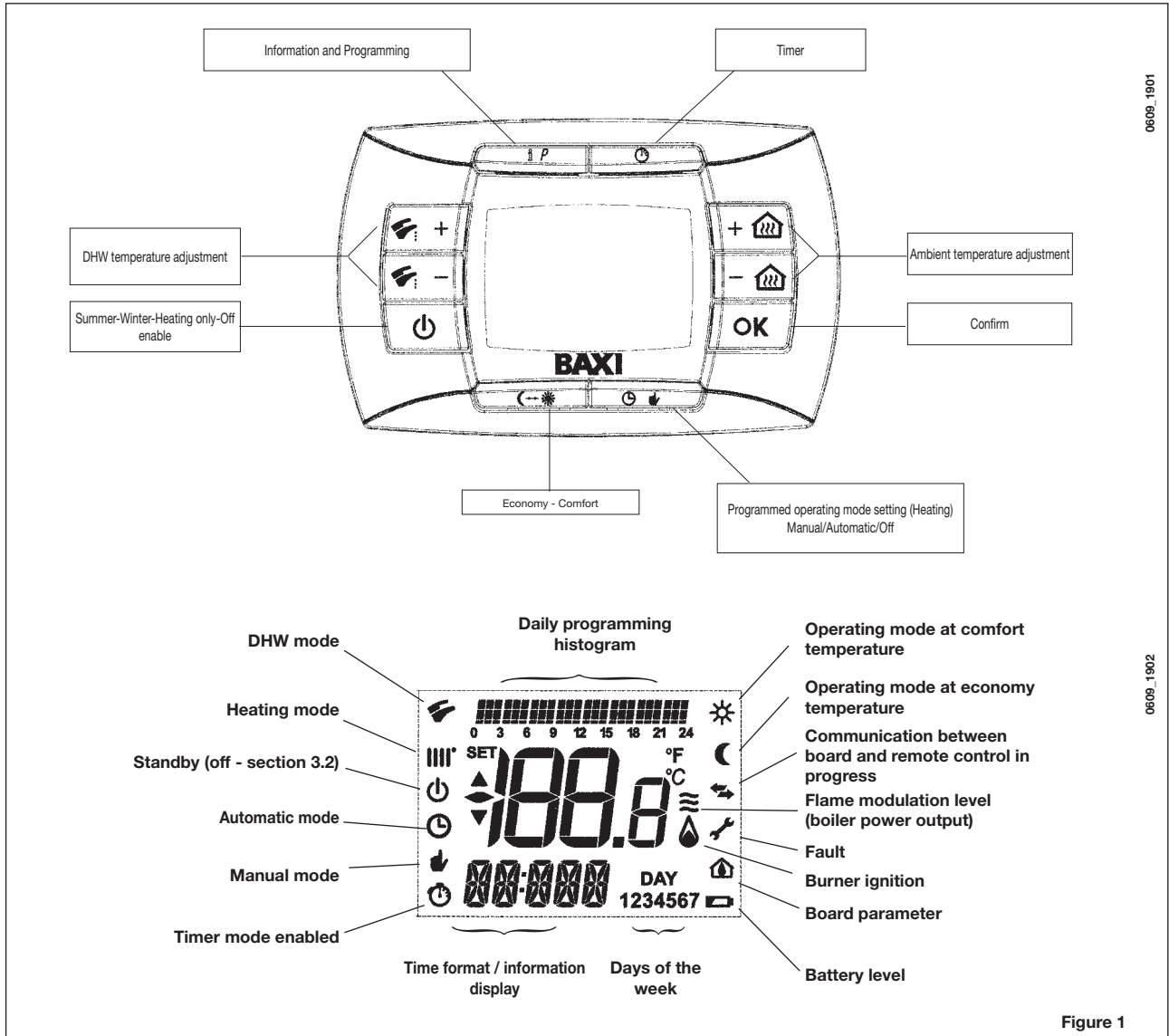
# 3. COMMISSIONING THE BOILER

To light the boiler correctly, proceed as follows:

- Power the boiler.
- Open the gas tap;
- Press button  on the remote control unit (figure 1) to set the boiler operating mode (see section 3.2).

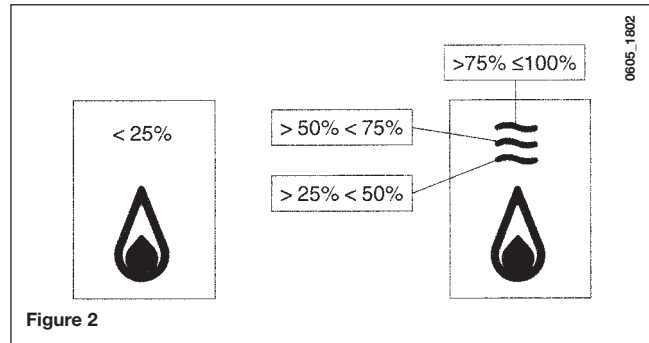
**N.B.:** if the SUMMER , mode is set, the boiler will only light during a DHW demand.

- To adjust CH and DHW temperatures, press the +/- buttons as described in section 3.3.



### 3.1 MEANING OF THE SYMBOL


4 different boiler modulation levels are shown on the remote control display during boiler operation, as indicated in figure 2.






### 3.2 DESCRIPTION OF BUTTON (Summer - Winter - Heating only - Off)



Press this button to set the following operating modes

- **SUMMER**
- **WINTER**
- **HEATING ONLY**
- **OFF**

In the **SUMMER** mode, the display shows . The boiler satisfies requests for DHW only while central heating is NOT enabled (ambient frost protection function active).

In the **WINTER** mode, the display shows  and . The boiler satisfies requests for both DHW and central heating (ambient frost protection function active).



In the **HEATING ONLY** mode, the display shows . The boiler satisfies requests for central heating only (ambient frost protection function active).

In the **OFF** mode, the display shows neither of the above two symbols  . In this mode, only the ambient frost protection function is active while requests for DHW and central heating are not satisfied.


### 3.3 DESCRIPTION OF BUTTON (AUTOMATIC-MANUAL-OFF)

Press this button to set one of the following heating functions:  
AUTOMATIC-MANUAL-OFF as described below.


#### **AUTOMATIC** (symbol displayed )

This function enables hourly boiler programming in the heating mode. Heat demand depends on the hourly programming setting (ambient temperature COMFORT “” or ambient temperature ECONOMY “”). See section 3.6 for hourly programming settings.

#### **MANUAL** (symbol displayed )

This function disables hourly programming and the boiler works in the heating mode at the ambient temperature set by pressing +/- .


#### **OFF** (symbol displayed )

If the remote control unit is set to “Off”, the display shows the symbol  and operation in the heating mode is disabled (the ambient frost protection function remains active).

## 3.4 AMBIENT TEMPERATURE AND DHW TEMPERATURE ADJUSTMENT


Adjust the ambient temperature  and the DHW temperature , by pressing the respective +/- (figure 1).  
When the burner is lit, the display shows the symbol  as described in section 3.1.

### HEATING


While the boiler is operating in the heating mode, the display shows the symbol () and the ambient temperature (°C) (see figure 1).

During manual ambient temperature adjustment, the display shows “tAMB”.

### DOMESTIC HOT WATER

While the boiler is operating in the DHW mode, the display shows the symbol  and the ambient temperature (°C) (see figure 1).

During manual DHW temperature adjustment, the display shows the “HW SP”.

**N.B.:** If a storage boiler is connected, while the boiler is operating in the DHW mode, the display shows the symbol  and the ambient temperature (°C).

### 3.4.1. Remote control unit in boiler




If the remote control unit is installed in the boiler, press +/-  to adjust the delivery temperature of the heating system water. Ambient temperature is displayed.

## 3.5 PROGRAMMING (PROGR)

### DATE-TIME SETTINGS



Press **IP**: the display shows **PROGR** (for a few seconds) and the hour starts flashing.

**N.B.:** if no button is pressed, the function automatically stops after about 1 minute.

- Press +/-  to adjust the hours;
- Press OK;
- Press +/-  to adjust the minutes;
- Press OK;
- Press +/-  to set the day of the week “Day” (1...7 corresponding to Monday...Sunday);

Press **IP** to exit DATE-TIME settings.

## 3.6 HOURLY PROGRAMMING IN HEATING MODE

To enable hourly programming in the heating mode, press  (the symbol  appears on the remote control display). Hourly programming allows you to set the automatic boiler operation in the heating mode during determined time bands and determined days of the week.





Boiler settings can be made for **single** days or for **groups** of consecutive days.

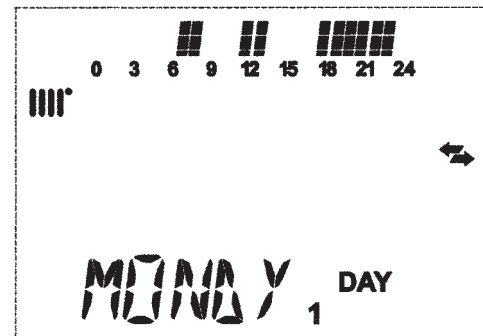
### 3.6.1. Single days

4 time bands are available every day (4 boiler switching on and switching off cycles in the heating mode, with times that can differ from day to day), as indicated in the following table:

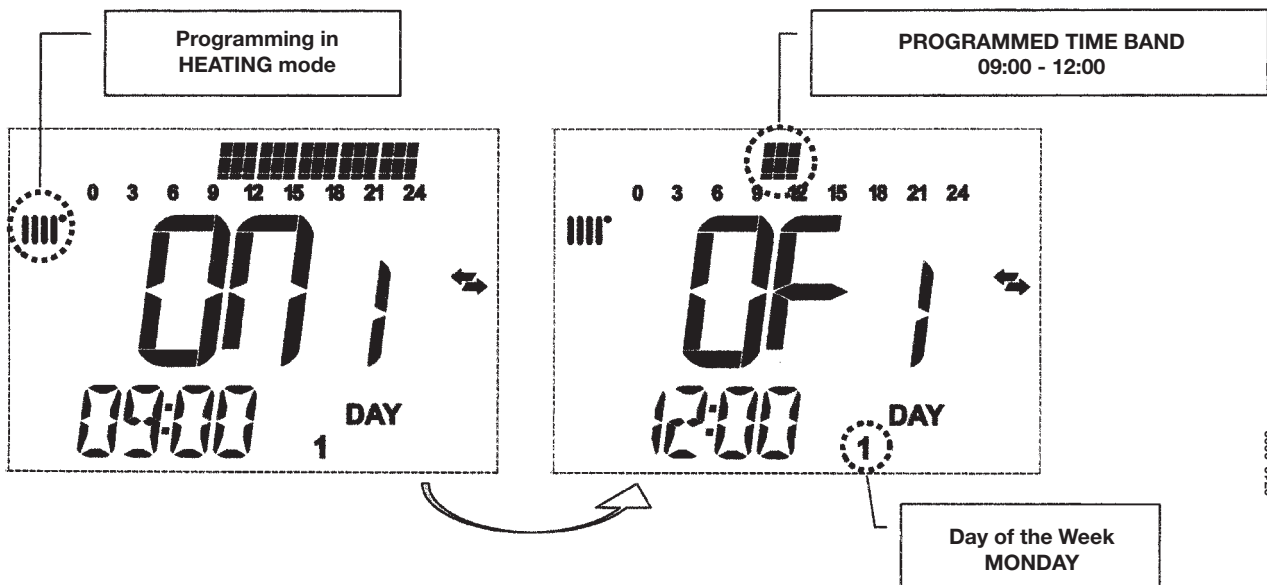
			FACTORY SETTINGS							
			On 1	Of 1	On 2	Of 2	On 3	Of 3	On 4	Of 4
MONDY	DAY 1	(Monday)	06:00	08:00	11:00	13:00	17:00	23:00	24:00	24:00
TUEDY	DAY 2	(Tuesday)								
WEDDY	DAY 3	(Wednesday)								
THUDY	DAY 4	(Thursday)								
FRIDY	DAY 5	(Friday)								
SATDY	DAY 6	(Saturday)								
SUNDY	DAY 7	(Sunday)								

To set a single time band, proceed as follows:

- 1) Press **IP** and then ;
- 2) select a day of the week (1...7) by pressing +/-  repeatedly;
- 3) press **OK**;
- 4) the display shows **on 1** and the four time digits start flashing, as shown in the following figure;
- 5) press +/-  to set the boiler switching on time;
- 6) press **OK**;
- 7) the display shows **of 1** and the four time digits start flashing;
- 8) press +/-  to set the boiler switching off time;
- 9) press **OK**;
- 10) repeat the operations from point 4 onwards to set the remaining three time bands;
- 11) press **IP** to exit the function.



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**N.B.:** If switching on time **on...** is set at the same time as switching off time **of...**, the time band is cancelled and the programme moves on to the next time band.  
(e.g.: **on1**=09:00 – **of1**=09:00. the programme “skips” time band 1 and continues to **on2...**).



### 3.6.2. Groups of days

This function allows you to programme 4 shared boiler switching on and switching cycles for several days or for the whole week (see summary below).

To set a single time band, proceed as follows:

- 1) Press **IP** and then ;
- 2) Select a GROUP of days by pressing +/-  repeatedly;
- 3) press **OK**;
- 4) repeat the operations from points 4 to 10 of section 3.6.1.



<i>Summary of available groups of days</i>			<b>FACTORY SETTINGS</b>
<b>Group MO- FR</b>	<b>DAY 1 2 3 4 5</b>	<i>Monday to Friday</i>	<i>As per table in section 3.6.1.</i>
<b>Group SA - SU</b>	<b>DAY 6 7</b>	<i>Saturday and Sunday</i>	<i>07:00 - 23:00</i>
<b>Group MO - SA</b>	<b>DAY 1 2 3 4 5 6</b>	<i>Monday to Saturday</i>	<i>As per table in section 3.6.1.</i>
<b>Group MO - SU</b>	<b>DAY 1 2 3 4 5 6 7</b>	<i>every day of the week</i>	<i>As per table in section 3.6.1.</i>

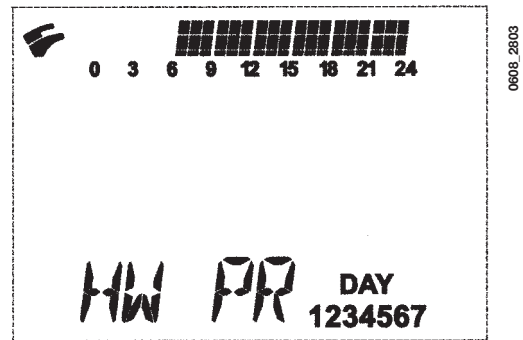
## 3.7 HOURLY PROGRAMMING DOMESTIC HOT WATER MODE

**(only for boilers connected to an external storage boiler)**

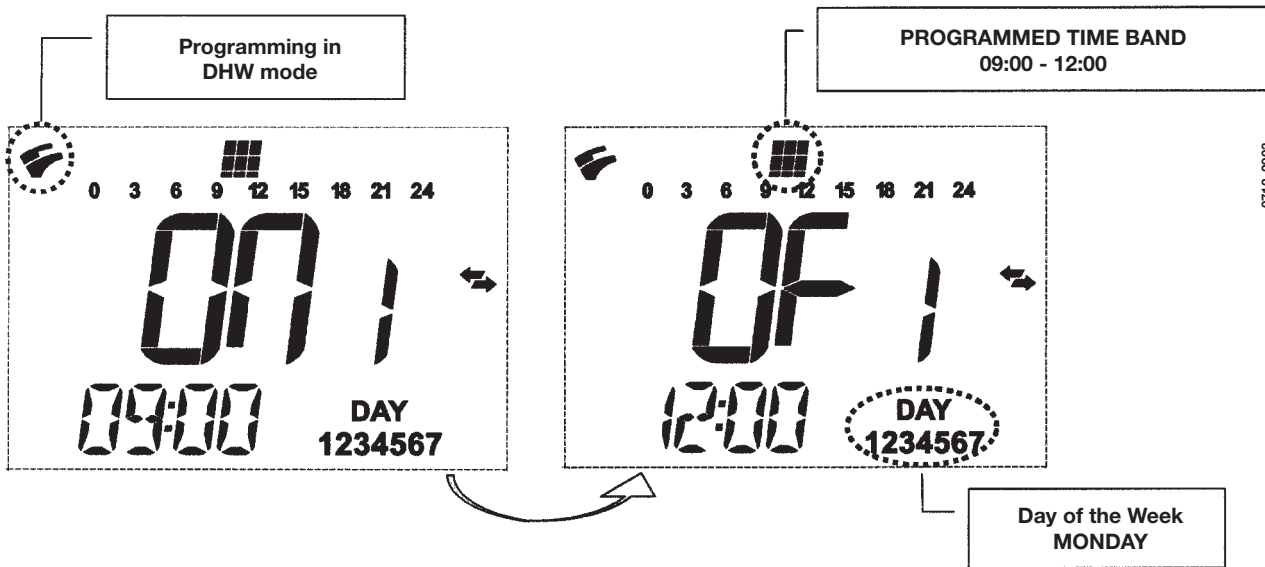
This function allows you to programme 4 boiler time bands in the DHW mode during the week (the programmed time bands are identical for every day of the week).

To set hourly programming in the DHW mode, proceed as follows:

- 1) Press **IP** and then  to access programming (heating and DHW);
- 2) select the DHW programme “**HW PR**” by pressing +/-  repeatedly;
- 3) press **OK**
- 4) set the time bands in which DHW is to be made available by repeating the operations from points 4 to 10 of section 3.6.1 (factory setting 06:00 - 23:00).



**IMPORTANT:** to enable weekly programming, the fitter must set the parameter “**HW PR**” = 2, as described in section 21.




## 4. SPECIAL FUNCTIONS



### 4.1 ECONOMY - COMFORT FUNCTION

This function is used to set two different ambient temperature values:

#### **Economy / Comfort.**

For the sake of simplicity, make sure ECONOMY is at a lower temperature than COMFORT.


To set the required ambient temperature, press .

- “**ECONM**” indicates that ambient temperature is set to economy:  
the display shows the symbol ;
- “**COMFR**” indicates that ambient temperature is set to comfort:  
the display shows the symbol .


To temporarily change the ambient temperature, press +/-  or see section 4.3. This function can be manual or automatic, as described below:


#### **AUTOMATIC OPERATION (symbol on display )**

The ambient temperature setting depends on the time band (section 3.6). The ambient temperature is set to COMFORT inside the time band while it is set to ECONOMY outside the time band.

Press  to temporarily change ambient temperature (from COMFORT to ECONOMY and vice-versa) until the next set time band change.

#### **MANUAL OPERATION (symbol on display )**

Press  and set the boiler to manual.

Press  to change ambient temperature (from COMFORT to ECONOMY and vice-versa) until the next time the button is pressed.

## 4.2 SHOWER FUNCTION

The shower function optimises DHW control, for example, when someone is taking a shower. The function delivers DHW at a lower than rated temperature.

To modify the maximum temperature of the shower function, proceed as described in section 4.3.

This function can be manually enabled as follows:

- Press one of the two buttons +/- (🔌) and then ⏸ to enable the function (**SHOWR** appears on the display for a few seconds followed by **HW SS**);
- press **OK** while the delivery temperature and the symbol 🔌 flashes on the display;
- the function lasts **60 minutes** (the symbol 🔌 flashes during this time).  
At the end of this period, DHW temperature returns to that of the operating mode set before the function activated (the symbol 🔌 not longer flashes on the display).

**N.B.:** to disable the function before the 60 minute period terminates, proceed as follows:

- press one of the two buttons +/- (🔌) and then ⏸;
- press **OK**, to display “**HW S^**”.

## 4.3 CHANGE TEMPERATURE VALUES OF THE FUNCTIONS ASSOCIATED WITH THE ⏸➡🌞 BUTTON

To change the temperature value, proceed as follows:

- Press **IP** to enable the **PROGR** function;
- press ⏸➡🌞 to scroll the functions to modify, as described in the following table:

Function	Display	Description of function
<b>COMFR</b>	The set temperature flashes (factory value = <b>20°C</b> )	Boiler in heating mode at rated temperature.
<b>ECONM</b>	The set temperature flashes (factory value = <b>18°C</b> )	Boiler in heating mode at reduced temperature.
<b>NOFRS</b>	The set temperature flashes (factory value = <b>5 °C</b> )	Boiler in heating mode at preset frost protection ambient temperature.
<b>SHOWR</b>	The set temperature flashes (factory value = <b>40°C</b> )	Boiler in DHW mode at the preset temperature.

- To change the value of the selected function, press +/- 🏠;
- To exit, press **IP**

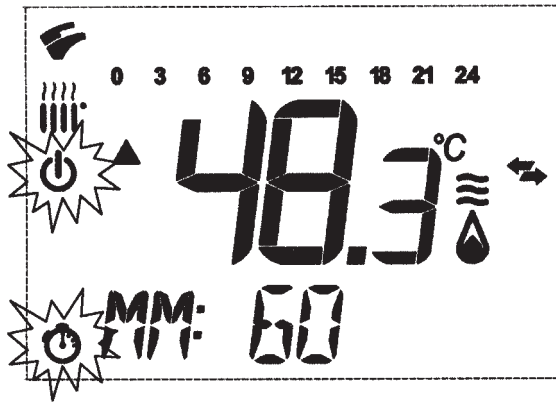
## 4.4 TIMED FUNCTIONS (⏸🕒 BUTTON)

### 4.4.1 TIMED SHUTDOWN (HOLIDAY PROGRAMME)

ambient temperature is assured (factory setting 5°C). This setting may be modified as described in section 4.3 under “**NOFRS**”.

To enable the function, proceed as follows:

- press ⏸🕒 and set the “**AUTO**” function (symbol ⏸🕒);
- press ⏸ **MM 60** appears on the display and the symbols ⏸🕒 flash.



In this example, the function lasts 60 minutes.

Press +/- to adjust the duration of the function, the adjustment step is 10 minutes. Duration ranges from 10 minutes to a maximum of 45 days.

Press + after **90 minutes**, **HH 02** appears on the display:

In this case, the time is considered in hours. Duration ranges from 2 to 47 hours.

Press + after **47 hours**, **DD 02** appears on the display:

In this case, the time is considered in days. The duration ranges from 2 to 45 days (the adjustment step is 1 day).

**CAUTION:** after enabling this function, make sure not to press any other button. If one of the buttons on the remote control unit is pressed, in fact, the manual function may be enabled (symbol flashes on the display) and the “Timed shutdown” function is interrupted. In this case, repeat the function enable procedure as described at the beginning of this section.

#### 4.4.2 TIMED MANUAL MODE (PARTY)

This function is used to set a temporary ambient temperature. After this period, the operating mode returns to the previously set one.

To enable the function, proceed as follows:

- press and set the “**MANUAL**” function (symbol );
- press **MM 60** appears on the display and the symbols flash;
- the duration of the function is adjusted as described in section 4.4.1.
- to modify the ambient temperature, press **OK** (“**AMB**” appears on the display) and then +/- .

## 5. FILLING THE SYSTEM

The boiler features an automatic system filling device (section 15 - fitter).

Filling takes place, with the boiler electrically powered, when system pressure is insufficient for correct operation. This is indicated on the remote control unit with the message E18. If this message appears frequently, call in the Authorised Technical Assistance Service.

**CAUTION:** *The inlet tap in the boiler (figures 4 and 6) must always stay open to allow the system to be filled automatically. Close it to disable the automatic filling system. The boiler will continue to work as usual.*

## 6. TURNING OFF THE BOILER

To switch off the boiler, disconnect the electric power supply. With the gas boiler in “**OFF**” mode (section 3.2), the electric circuits remain powered and the frost protection function is enabled (section 8).

## 7. GAS CONVERSION

The boilers can operate both on natural gas and **LPG**.  
All gas conversions must be made by an authorised Service Engineer.

## 8. PROLONGED SHUTDOWN. FROST PROTECTION

Do not drain the whole system as filling up with water again causes unnecessary and harmful scale to build up inside the boiler and the heating elements. If the boiler is not used during winter and is therefore exposed to the danger of frost, add some specific anti-freeze to the water in the system (e.g.: propylene glycol coupled with corrosion and scale inhibitors). The electronic boiler management system includes a “frost protection” function for the heating system which, when the delivery temperature falls below 5°C, operates the burner until a delivery temperature of 30°C is reached.


The frost protection function is enabled if:

- \* the boiler is electrically powered;
- \* the gas tap is open;
- \* the system is at the correct pressure;
- \* the boiler is not blocked.

## 9. TROUBLESHOOTING

The remote control unit sends two types of signals: **FAULT** and **BLOCK**.


### **FAULT**

Faults are signalled on the display with  and a flashing <ERROR> message. The fault is identified with an error code followed by the letter E and cannot be reset by the user.  
Call the authorised Service Centre.



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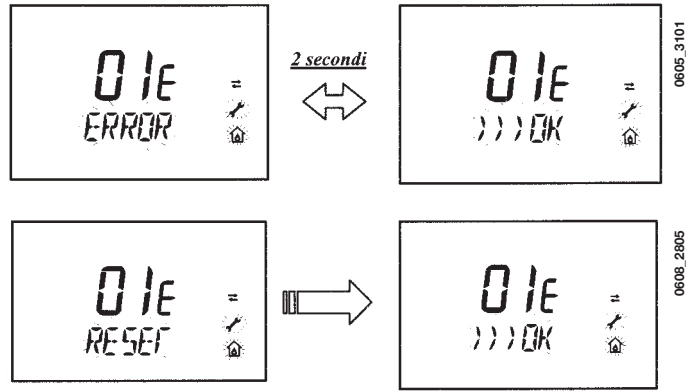
## BLOCK

Block errors are signalled on the display with  and a flashing >>>OK message alternating (about every 2 seconds) with the flashing message <ERROR>.

The block is identified by an error code followed by the letter E.

Press **OK** to reset the electronic board and resume operation.

The display shows <RESET> and then >>>OK.



CODE	ERROR	CORRECTIVE ACTION
01E	Ignition failure	Press OK. If this fault persists, call the Authorised Service Centre.
02E	Safety thermostat tripped	Press OK. If this fault persists, call the Authorised Service Centre.
03E	Flue thermostat/ flue pressure switch tripped	Call the Authorised Service Centre.
04E	Safety error due to frequent flame loss	Call the Authorised Service Centre.
05E	Delivery sensor fault	Call the Authorised Service Centre.
06E	DHW sensor fault	Call the Authorised Service Centre.
10E	Hydraulic pressure switch block	Check that the pressure in the system is correct; See section 5. If this fault persists, call the Authorised Service Centre.
11E	Safety thermostat for low temperature system cuts in (if connected)	Call the Authorised Service Centre.
18E	System water filling in progress	Wait for filling to finish.
19E	System filling fault	Call the Authorised Service Centre.
25E	Pump faulty or air in system	Call the Authorised Service Centre
31E	Communication error between electronic board and remote control unit	Press OK. If this fault persists, call the Authorised Service Centre.
35E	Parasite flame (flamer error)	Press OK. If this fault persists, call the Authorised Service Centre.
80E	Internal error in remote control unit	Call the Authorised Service Centre.
96E	Internal error in remote control unit	Call the Authorised Service Centre.
97E	Electronic board input frequency (Hz) incorrectly set	Change the frequency (Hz) setting.
98E	Internal card error	Call the Authorised Service Centre.
99E	Internal card error	Call the Authorised Service Centre.

## 10. ROUTINE MAINTENANCE INSTRUCTIONS

To keep the boiler efficient and safe, have it checked by the authorised Service Centre at the end of every operating period. Careful servicing ensures economical operation of the system.

Do not clean the outer casing of the appliance with abrasive, aggressive and/or easily flammable cleaners (e.g.: petrol, alcohol, and so on). Always switch off the appliance before cleaning it (see section 6 “Switching off the boiler”).

## 11. GENERAL INFORMATION

The following notes and instructions are addressed to fitters to allow them to carry out trouble-free installation. Instructions for lighting and using the boiler are contained in the 'Instructions for Users' section.

Please note the following:

- This boiler can be connected to any type of double- or single-pipe convector plate, radiator or thermoconvector. Design the system sections as usual, though, bearing in mind the available flow-head at the plate, as shown in section 24. Do not leave any packaging (plastic bags, polystyrene, etc.) within reach of children, as it is a potential source of danger.
- Initial lighting of the boiler must be carried out by an authorised Service Engineer, as indicated on the attached sheet.

Failure to observe the above will render the guarantee null and void.

## 12. INSTRUCTIONS PRIOR TO INSTALLATION

This boiler has been designed to heat water to a temperature lower than boiling point at atmospheric pressure. It must be connected to a central heating system and to a domestic hot water supply system according to its performance and power output.

Do the following before connecting the boiler:

- a) Make sure that the boiler is adjusted to use the type of gas delivered by the gas supply. To do this, check the markings on the packaging and the rating plate on the appliance.

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- b) Make sure that the flue terminal draft is appropriate, that the terminal is not obstructed and that no exhaust gases from other appliances are expelled through the same flue duct, unless the latter has been specially designed to collect exhaust gas from more than one appliance, in compliance with current laws and regulations.

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- c) Make sure that, if the boiler is connected to existing flue ducts, these have been thoroughly cleaned as residual products of combustion may detach from the walls during operation and obstruct the flow of fumes.

To ensure correct operation and maintain the warranty, observe the following precautions:

### A. DHW circuit:

- a.1. If the water is harder than 20 °F (1 °F = 10 mg calcium carbonate per litre of water), install a polyphosphate dispenser or an equivalent treatment system, compliant with current regulations.
- a.2. Thoroughly flush the system after installation of the appliance and before use.
- a.3. The materials used for the domestic hot water circuit of the product comply with Directive 98/83/EC.

### B. Heating circuit

#### b.1. new system

Before proceeding with installation of the boiler, the system must be cleaned and flushed to eliminate residual thread-cutting swarf, solder and any solvents, using suitable proprietary products. To avoid damaging metal, plastic and rubber parts, only use neutral cleaners, i.e. non-acid and non-alkaline. Recommended cleaning products are: SENTINEL X300 or X400 and FERNOX Regenerator for heating circuits. Use these products in strict compliance with the manufacturers' instructions.

#### b.2. existing system:

Before installing the boiler, drain the system and clean it to remove sludge and contaminants, using suitable proprietary products as described in point b.1.

To avoid damaging metal, plastic and rubber parts, use only neutral cleaners, i.e. non-acid and non-alkaline such as SENTINEL X100 and FERNOX Protector for heating circuits. Use these products in strict compliance with the manufacturers' instructions.

Remember that the presence of foreign bodies in the heating system can adversely affect boiler operation (e.g. overheating and excessive noise of the heat exchanger).

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**Failure to observe the above will render the guarantee null and void.**

---

**IMPORTANT:** when connecting an instantaneous boiler (mixed) to a system with solar panels, the maximum temperature of the DHW at the boiler inlet must not be greater than:

- 60°C with a flow limiting device
- 70°C without a flow limiting device

# 13. INSTALLATION

After deciding the exact location of the boiler, fix the template to the wall.

Connect the system to the gas and water inlets present on the lower bar of the template.

Fit two G3/4 taps (delivery and return) on the central heating circuit; these taps make it possible to carry out important operations on the system without draining it completely.

If you are either installing the boiler on an existing system or replacing one, as well as the above, fit a settling tank under the boiler on the system return line in order to collect any deposits and scale circulating in the system after flushing.

After fixing the boiler to the template, connect the flue and air ducts, supplied as accessories, as described in the following sections.

# 14. INSTALLING THE BOILER

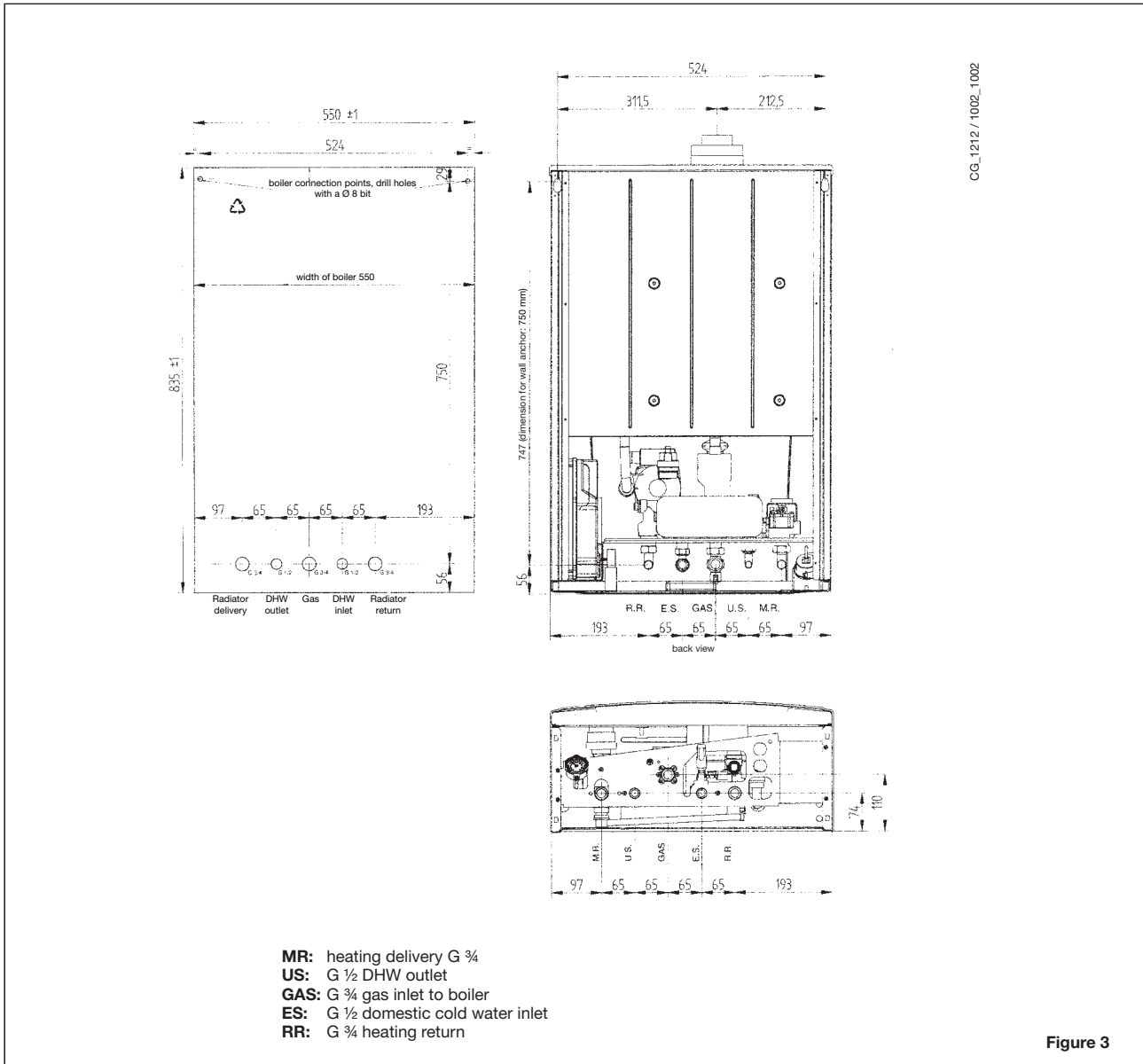
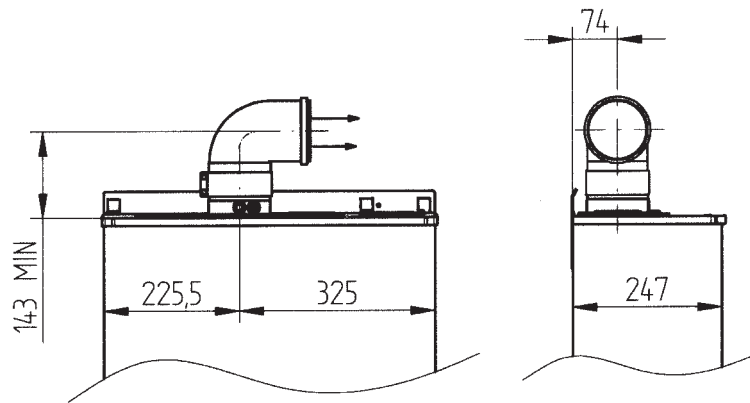


Figure 3





## 15. CONTENTS OF PACK

- remote control unit
- gas tap (1) for boiler maintenance
- water supply tap (2)
- gaskets
- telescopic copper pipes

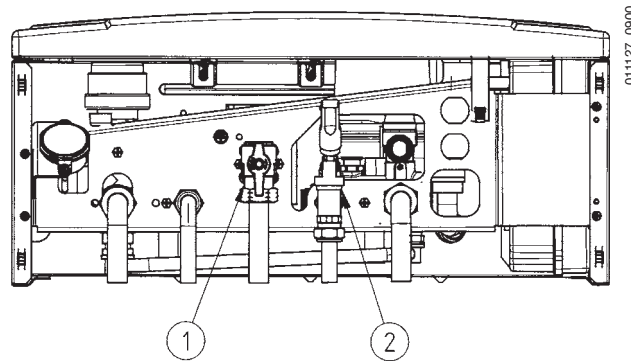


Figure 4

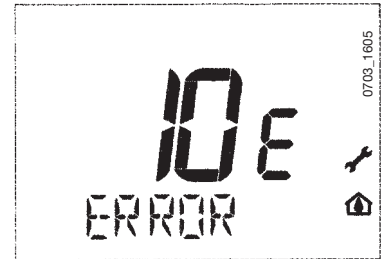
## 16. FILLING THE SYSTEM

The system is automatically filled with the boiler electrically powered. This phase has priority over heating demand but not over DHW demand.

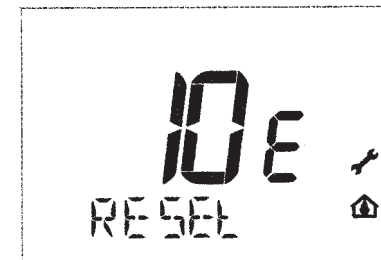
During DHW demand, filling is suspended until demand has been satisfied.

**CAUTION:** if error code **10E**, appears on the display, proceed as follows:

error code **10 E** appears on the display together with the message “**ERROR**”, call the Authorised Service Centre.



If error code **10 E** appears on the display together with the flashing message “**RESET**” press “**OK**” to try filling the system once again.



### 16.1 INITIAL SYSTEM FILLING PHASE (E19 filling)

When installing the appliance, or when extraordinary maintenance requires the system to be drained, the filling cycle lasts a maximum of 35 minutes in order to ensure the system is completely filled.

To start the filling cycle, proceed as follows:

- 1) switch the boiler off and then back on again;
- 2) the pressure switch sends a demand for inlet water and the message **18** appears on the remote control unit display;
- 3) filling is interrupted after 4-5 minutes and the message **E19** appears on the display;
- 4) press **OK** on the remote control device, the message “**FAULT 18**” reappears on the display. It is now possible to complete filling the system for a maximum overall time of 35 minutes.

After reaching the correct system pressure, the filling phase stops immediately and the boiler starts operating automatically.

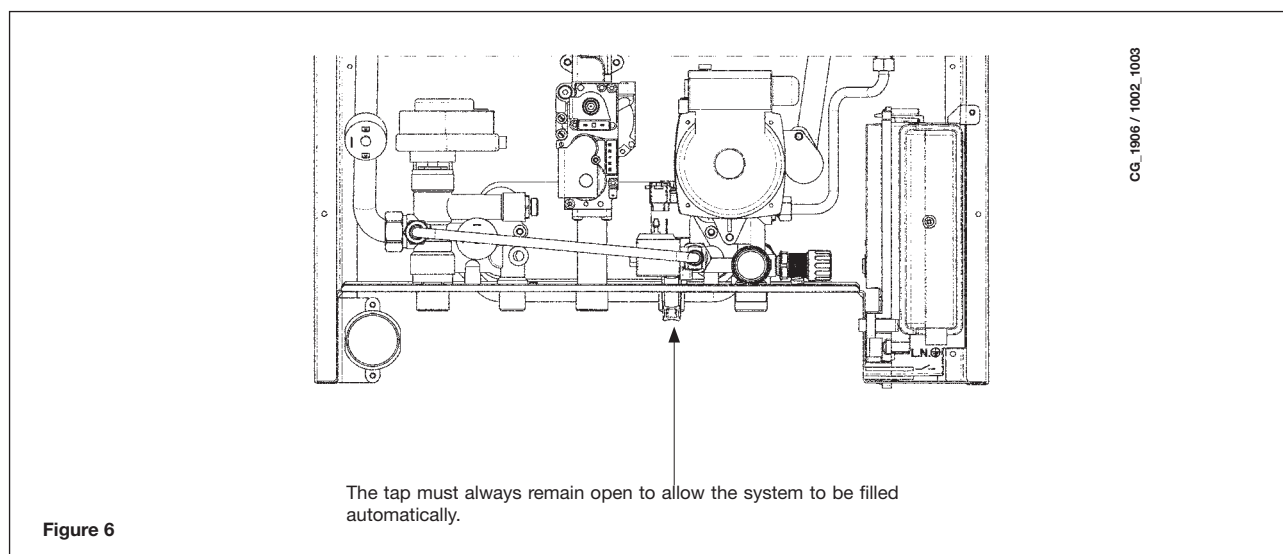
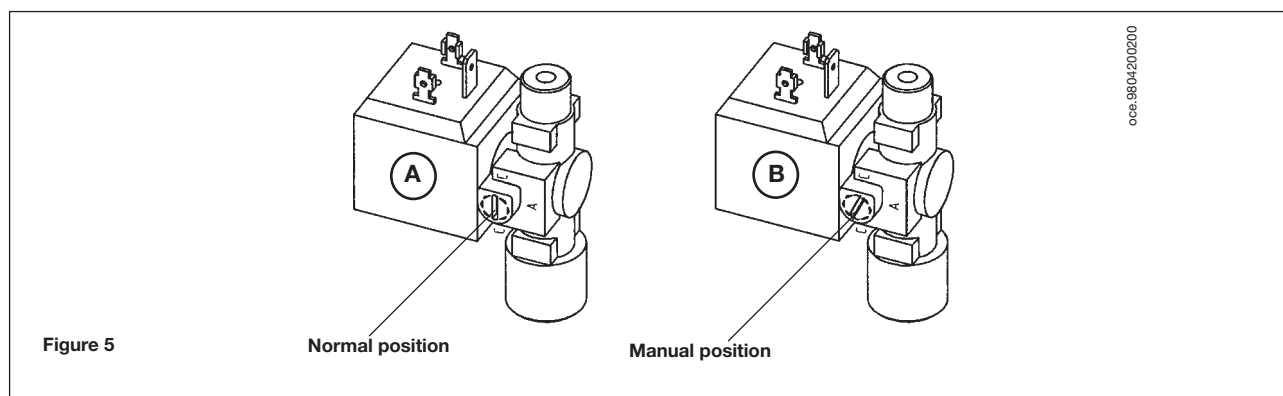
## 16.2 SYSTEM PRESSURE RECOVERY PHASE (E18)

Whenever system pressure falls below ~0.8 bar, the electronic board enables the automatic pressure recovery phase as described below:

- 1) the pressure switch sends a demand for water and the message “**FAULT 18**” appears on the remote control unit display;
- 2) after the filling time has elapsed (4÷5 minutes), if system pressure has not reached the correct value, the electronic board interrupts filling and the “**E19 FILLING**” error message appears on the remote control unit display;
- 3) press **OK** to resume filling (starting from point 1).

**CAUTION:** *if the E19 error message reappears at the second attempt to restore system pressure, call the Authorised Service Centre.*

If the inlet electrovalve is stuck, this can be manually released by turning the screw with a screwdriver as shown in figure 5, taking care to reposition the valve over the **C** punched on the valve body.



The system may be filled manually by turning the screw on the electrovalve body (fig. 5). After filling, reposition the screw as shown in figure 5.

**CAUTION:** *The inlet tap in the boiler (figures 5 and 6) must always stay open to allow the system to be filled automatically. Close it to disable the automatic filling system. The boiler will continue to work as usual.*

# 17. INSTALLING THE FLUE AND AIR DUCTS

## CAUTION:

To optimise operating safety, make sure the flue ducts are firmly fixed to the wall with suitable brackets.

## FORCED-FLOW MODELS

The boiler is easy and flexible to install thanks to the extensive range of available accessories, as described below. The boiler has been designed for connection to a vertical or horizontal coaxial flue-air duct. A splitting kit is also available if separate ducts are required.

**Only accessories supplied by the manufacturer must be used for installation!**

## COAXIAL FLUE-AIR DUCT (CONCENTRIC)

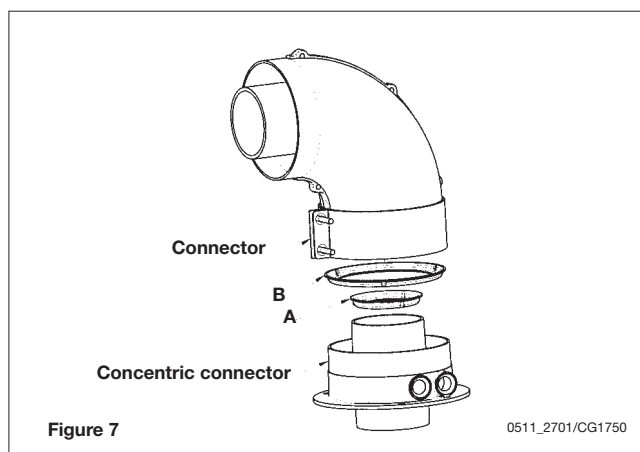
This type of duct is used to discharge exhaust fumes and draw combustion air both outside the building and if a LAS flue is fitted.

The 90° coaxial bend allows the boiler to be connected to a flue-air duct in any direction as it can be rotated by 360°. It can also be used as a supplementary bend combined with a coaxial duct or a 45° bend.

If fumes are discharged outside the building, the flue-air duct must protrude at least 18mm from the wall to allow an aluminium weathering surround to be fitted and sealed to avoid water infiltrations.

- **Make sure there is a minimum downward slope of 1 cm per metre of duct towards the outside.**
- **A 90° bend reduces total duct length by 1 metre.**
- **A 45° bend reduces total duct length by 0.5 metres.**

**N.B.:** The first 90° bend is not included when calculating the maximum available length.

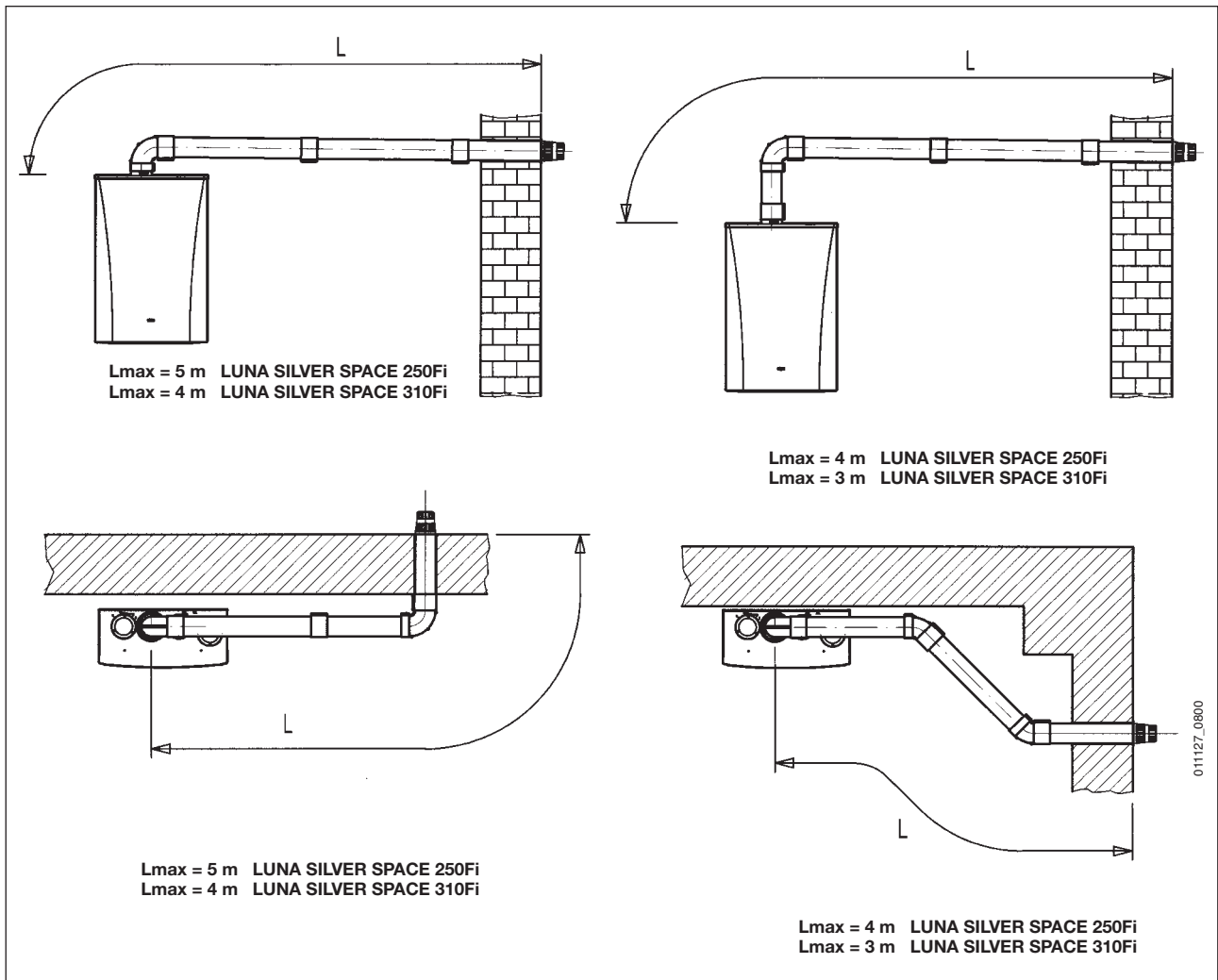


## TABLE FOR PER COAXIAL EXHAUST DUCTS

Boiler model	Length (m)	use of DIAPHRAGM on Ø 80 INLET DUCT	use of DIAPHRAGM on EXHAUST DUCT
		(B)	(A)
250 Fi	0 ÷ 1	Yes	Yes
	1 ÷ 2		No
	2 ÷ 5	No	No
310 Fi	0 ÷ 1	No	Yes
	1 ÷ 2	Yes	No
	2 ÷ 4	No	No

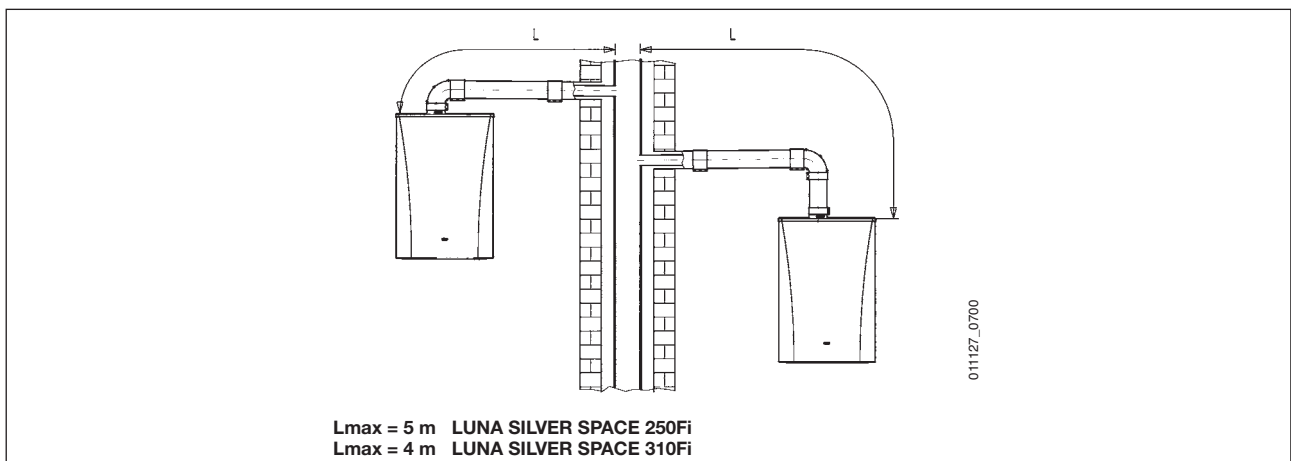
## HORIZONTAL FLUE INSTALLATION OPTIONS

### C12 TYPE



## LAS FLUE DUCT INSTALLATION OPTIONS

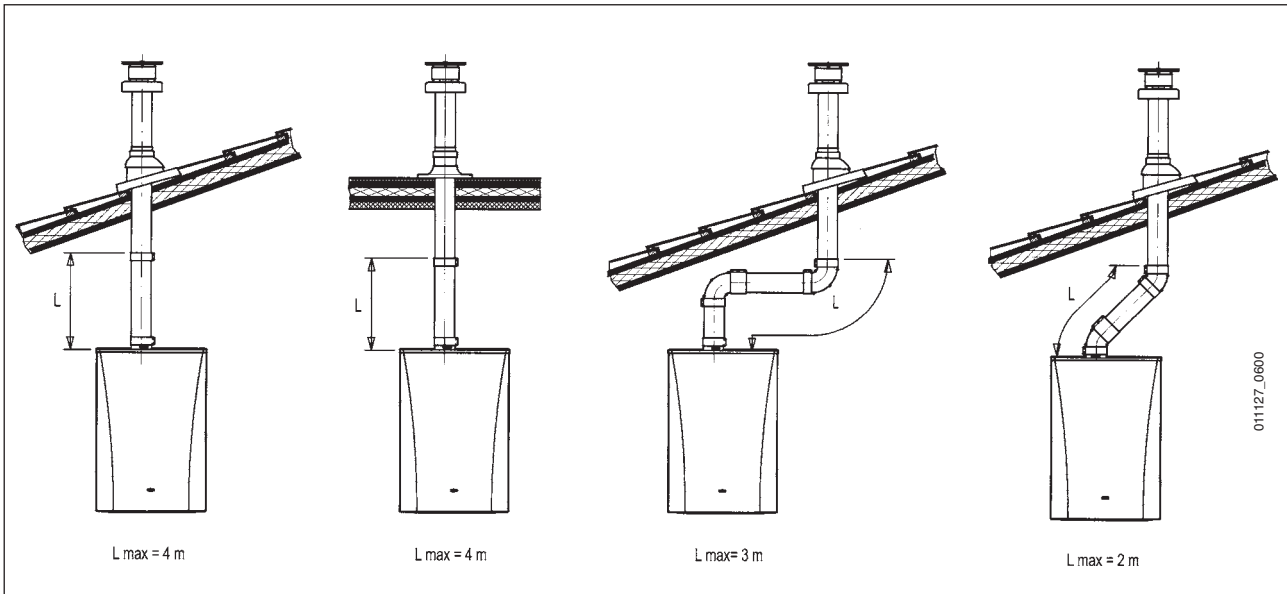
### C42 TYPE



## VERTICAL FLUE INSTALLATION OPTIONS

This type of installation can be carried out on either a flat or a pitched roof by fitting a flue terminal and a special weathering surround with sleeve (both available on request).

### C32 TYPE



For detailed installation instructions, consult the technical data provided with the accessories.

### SEPARATE FLUE AND AIR DUCTS

This type of installation makes it possible to discharge exhaust fumes both outside the building and into single flue ducts.

Comburent air can be drawn in at a different location from that of the flue terminal.

The splitting kit comprises a flue duct adaptor (100/80) and an air duct adaptor that can be fitted both to the left and the right of the exhaust connector depending on installation requirements.

For the air duct adaptor, fit the screws and seals previously removed from the cap.

Remove the diaphragm in the boiler if these types of flue ducts are used.

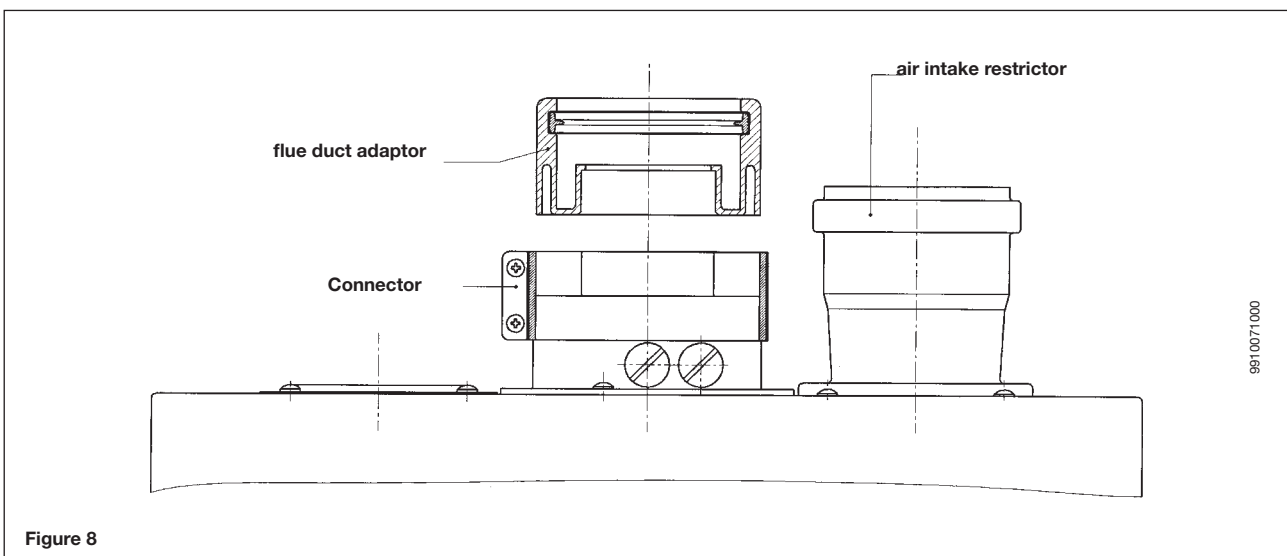


Figure 8

The 90° bend allows the boiler to be connected to a flue-air duct in any direction as it can be rotated by 360°. It can also be used as a supplementary bend combined with a duct or a 45° bend.

## Air adjustment for separate flues

Boiler model	(L1+L2)	Position of adjuster	CO2 %	
			G20	G31
250 Fi	0 ÷ 12	1	6,4	7,2
	12 ÷ 25	2		
	25 ÷ 40	3		
310 Fi	0 ÷ 6	1	7,2	8,0
	6 ÷ 20	2		
	20 ÷ 25	3		

The 90° bend allows the boiler to be connected to a flue-air duct in any direction as it can be rotated by 360°. It can also be used as a supplementary bend combined with a duct or a 45° bend.

- A 90° bend reduces total duct length by 0.5 metres.
- A 45° bend reduces total duct length by 0.25 metres.
- The first 90° bend is not included when calculating the maximum available length.

## Adjusting the air regulator for separate flues

This regulator must be adjusted to optimise combustion efficiency and parameters.

After turning the air intake connector, which can be mounted both to the right and the left of the exhaust flue duct, suitably adjust the excess air according to the total length of the combustion exhaust and inlet flue ducts.

Turn this regulator clockwise to decrease the excess of comburent air and vice-versa to increase it.

To fine tune, use a combustion product analyser to measure the amount of CO2 in the fumes at maximum heat capacity, and, if a lower value is measured, gradually adjust the air regulator until the amount of CO2 indicated in the following table is measured.

To mount this device correctly, consult the relative instructions.

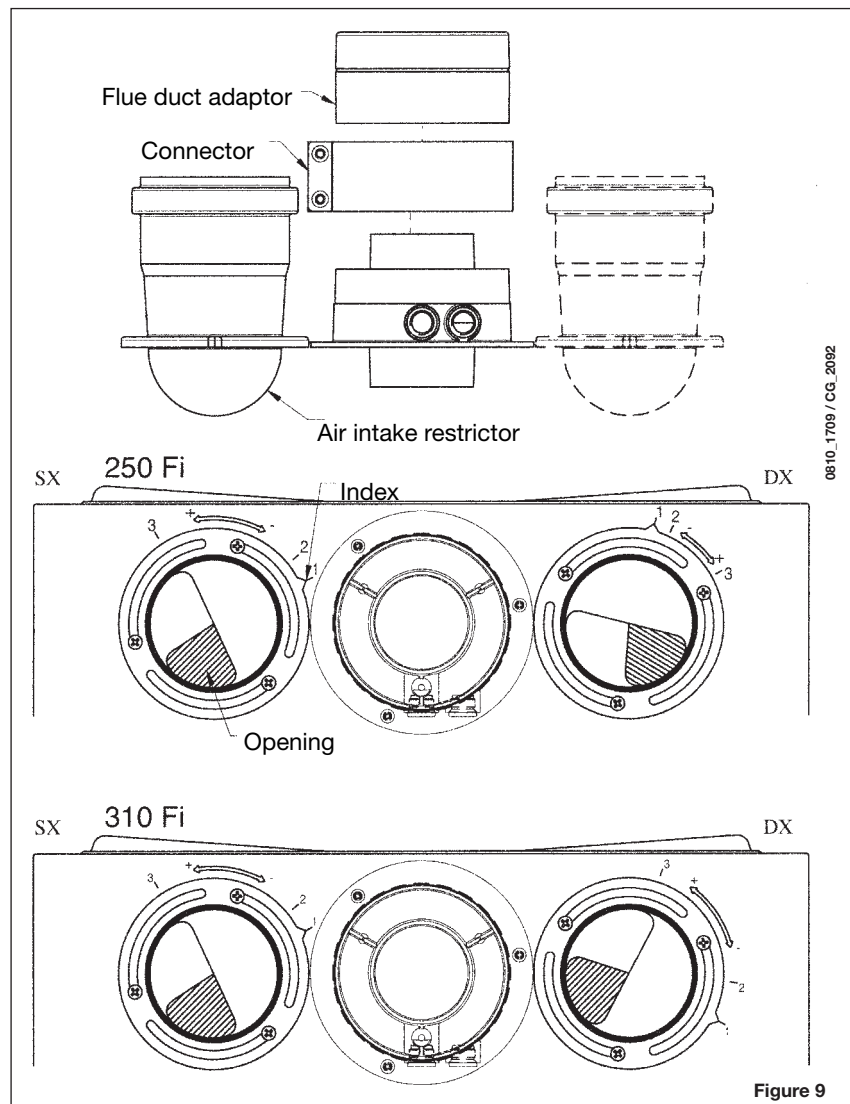
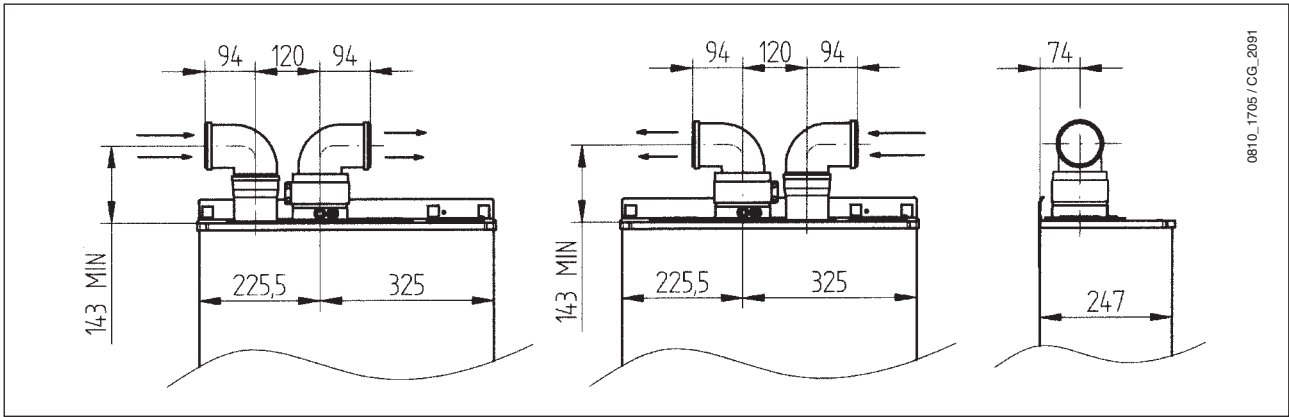


Figure 9



## SEPARATE HORIZONTAL FLUE INSTALLATION OPTIONS

**Important** - Make sure there is a minimum downward slope towards the outside of 1 cm per metre of duct length.

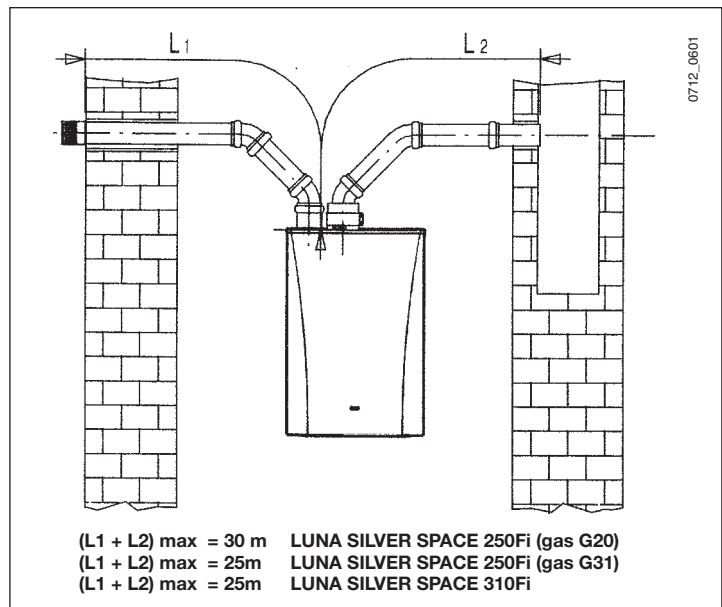
If the condensate collection kit is installed, the discharge duct must slope down towards the boiler.

**N.B.:** For the C52 type, do not fit the flue and air duct terminals on opposite walls of the building.

**The maximum length of the intake duct L2 must be 10 metres.**

If the discharge duct exceeds 6 metres, install the condensate collection kit (supplied as an accessory) close to the boiler.

### C52 TYPE



### EXHAUST-INTAKE DUCTS TYPE B (figure 10)

The comburent air is taken from the room where the boiler is installed.

The B22 accessory can be used to connect the boiler to the exhaust ducts in any direction.

- **Make sure there is a minimum upward slope towards the outside of 1 cm per metre of duct.**
- **A 90° bend reduces total duct length by 1 metre.**
- **A 45° bend reduces total duct length by 0.5 metres.**



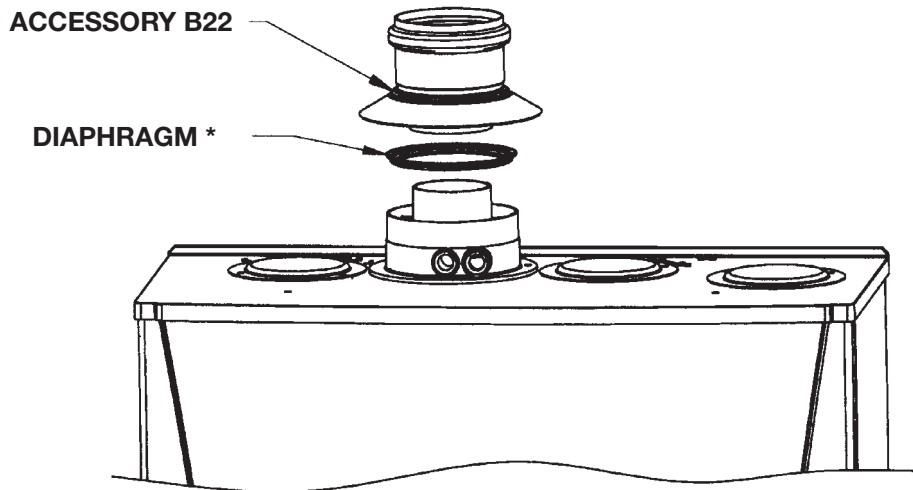


Figure 10

0512\_1406/CG1777

The first 90° bend, for horizontal discharge, is not considered when calculating the maximum length of the duct. If the discharge duct is longer than 6 metres, install the condensate collection kit, supplied as an accessory, near the boiler.

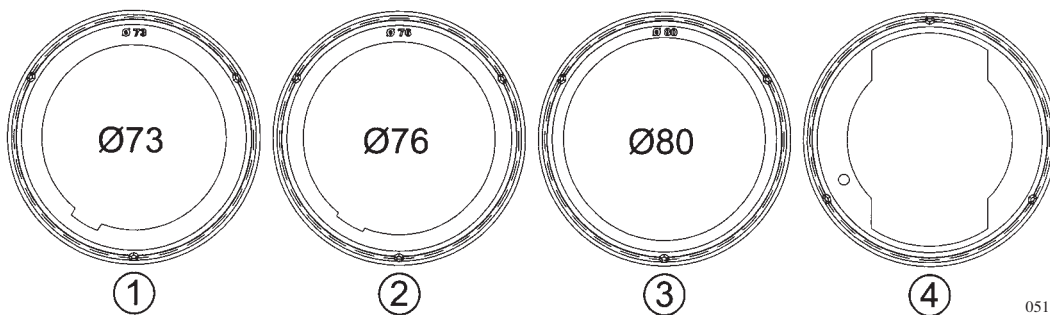


Figure 11

0511\_3005/CG1761

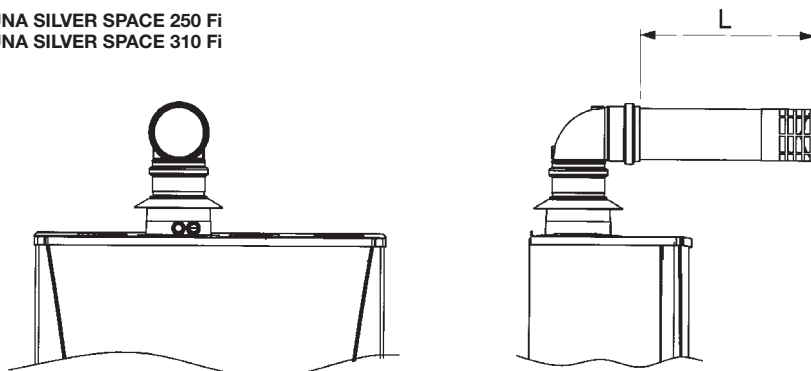
**N.B.:** diaphragm n° 4 is supplied separately as a kit.

	<b>MAX. LENGTH (m)</b>	<b>DIAPHRAGM</b>
<b>LUNA 3 SILVER SPACE 250 Fi</b>	5	1
	5 ÷ 15	4
	15 ÷ 25	3
<b>LUNA 3 SILVER SPACE 310 Fi</b>	5	4
	5 ÷ 10	2
	10 ÷ 25	3

## INSTALLATION OPTIONS WITH B22 ACCESSORY

### B22 TYPE

Lmax = 25 m LUNA SILVER SPACE 250 Fi  
Lmax = 22 m LUNA SILVER SPACE 310 Fi



0512\_1405/CG1778

## 18. CONNECTING THE MAINS SUPPLY

This machine is only electrically safe if it is correctly connected to an efficient earth system in compliance with current safety regulations.

Connect the boiler to a 230V single-phase earthed power supply using the supplied three-pin cable, observing correct Live-Neutral polarity.

Use a double-pole switch with a contact separation of at least 3mm.

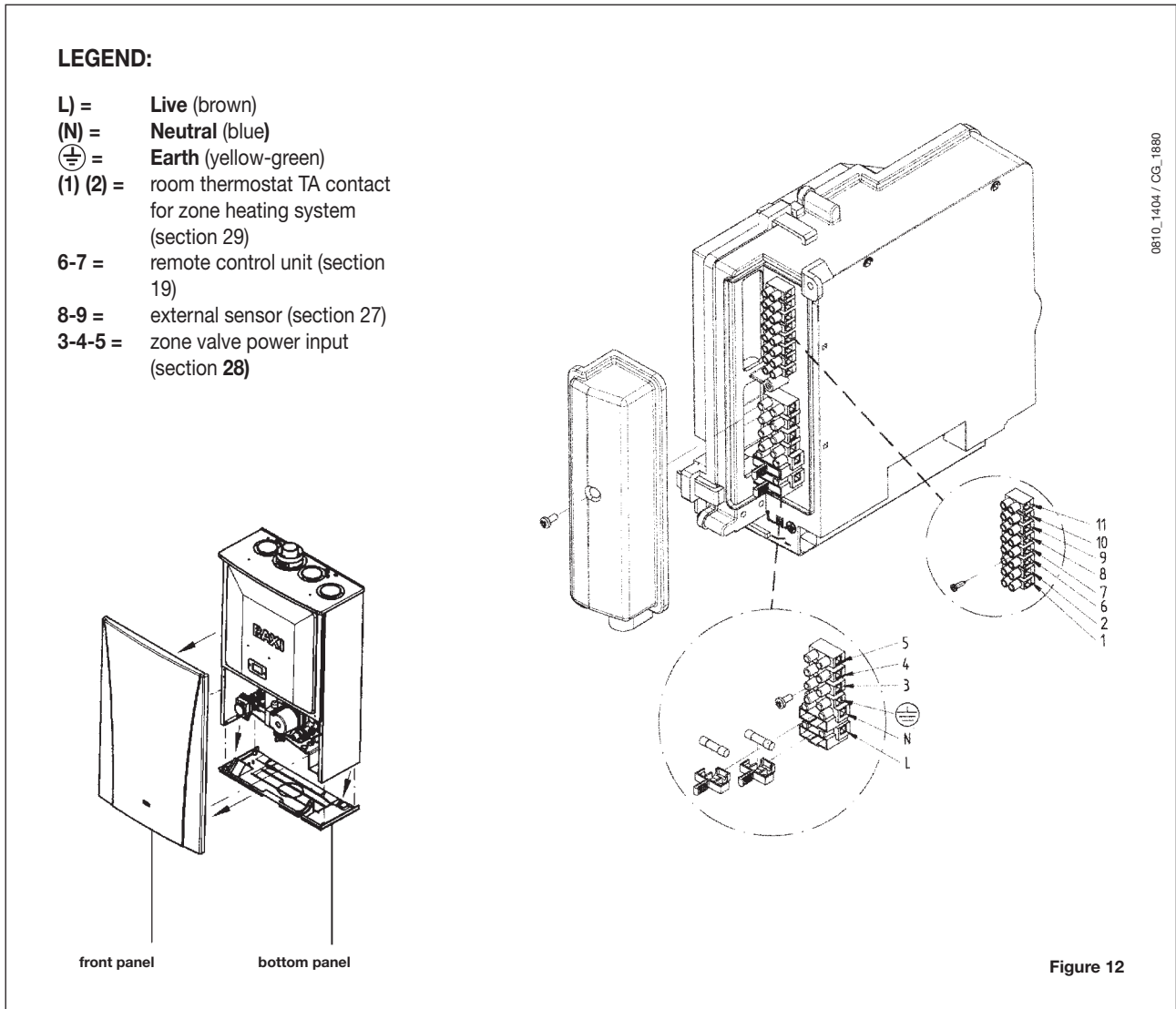
When replacing the power supply cable, fit a harmonised HAR H05 VV-F' 3x0.75mm<sup>2</sup> cable with a maximum diameter of 8mm.

The power cable and all the wires for connecting the remote control unit and the zone valves must be sheathed and pushed through the hole in the bottom of the casing/template (INLET Figure 5).

### 18.1 ACCESS TO THE POWER SUPPLY TERMINAL BLOCK

- Remove the front and bottom panels of the boiler (secured with screws and clips).
- Remove the cover and access the wiring area as illustrated in figure 12.

The 2A fast-blowing fuses are incorporated in the power supply terminal block (to check and/or replace the fuse, pull out the black fuse carrier).

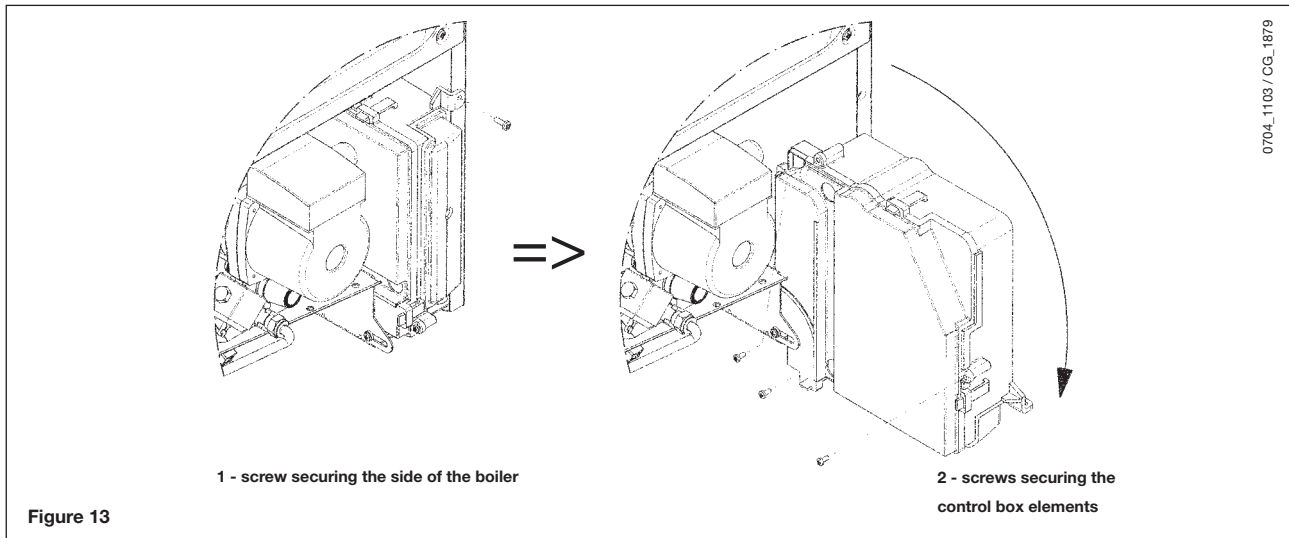


#### CAUTION:

If the appliance is directly connected to an underfloor system, the fitter must install a safety thermostat to prevent it from overheating.

## 18.2 ACCESS TO THE CONTROL BOX

To access the control box, perform the sequence of operations shown in figure 13.



- Remove the front panel of the boiler (secured with screws and clips);
- disconnect the boiler from the mains power supply using the two-pole switch;
- remove the screw (1) and rotate the control box;
- unscrew the screws and remove the cover (3).

## 18.3 CONNECTING A ROOM THERMOSTAT

The ambient thermostat is located inside the supplied remote control unit.

## 19. INSTALLING THE REMOTE CONTROL UNIT

Access the terminal board as described in section 18.1.

Use two wires with a minimum cross-section of 0.5 mm<sup>2</sup> and a maximum length of 50 m to connect the unit to the boiler, as shown in figure 14. Install the climate controller away from any heat sources in the room.

Use the remote control unit to adjust and programme the temperature of the DHW supply.  
Set the heating programme on the remote control unit if just one zone is involved or when adjusting the zone controlled by the remote control unit.

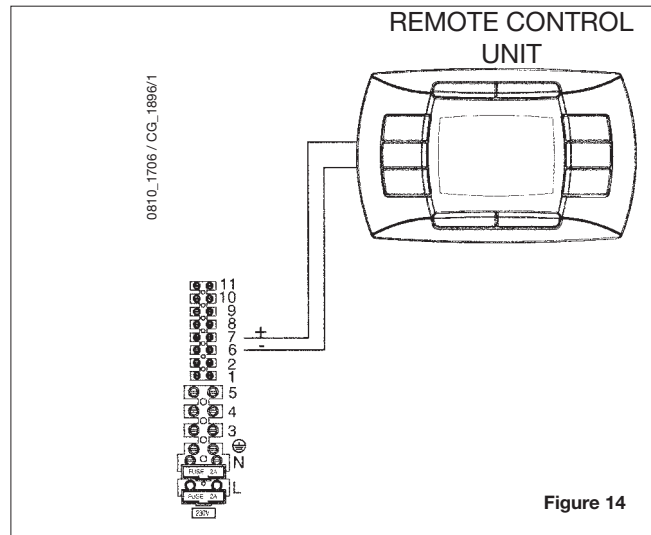


Figure 14

## 20. GAS CONVERSION

The authorised Technical Assistance Service can convert this boiler to natural gas (G20) or liquid gas (G31). The procedure for calibrating the pressure regulator varies slightly according to the type of gas valve fitted (HONEYWELL or SIT, see figure 15).

### CAUTION:

Only the **SIT 845 SIGMA** gas valve must be used for model 310 Fi.

Carry out the following operations:

#### A) Replace the burner injectors

- carefully pull the main burner off its seat;
- replace the main burner injectors making sure to fully tighten them to prevent gas leaks. Injector diameters are specified in table 1.

#### B) Change the modulator voltage

- set parameter **F02** according to the gas used, as described in section 22.

#### C) Calibrate the pressure regulator

- connect the positive pressure test point of a differential pressure gauge (possibly water-operated) to the gas valve pressure test point (**Pb**) (Figure 15).

Only for models with sealed chambers, connect the negative pressure test point of the pressure gauge to a "T" fitting in order to join the boiler adjustment outlet (**Pc**) and the pressure gauge.

(The same measurement can be made by connecting the pressure gauge to the pressure test point (**Pb**) after removing the front panel of the sealed chamber);

Measuring burner pressure using methods other than those described could lead to incorrect results as the low pressure created by the fan in the sealed chamber would not be taken into account.

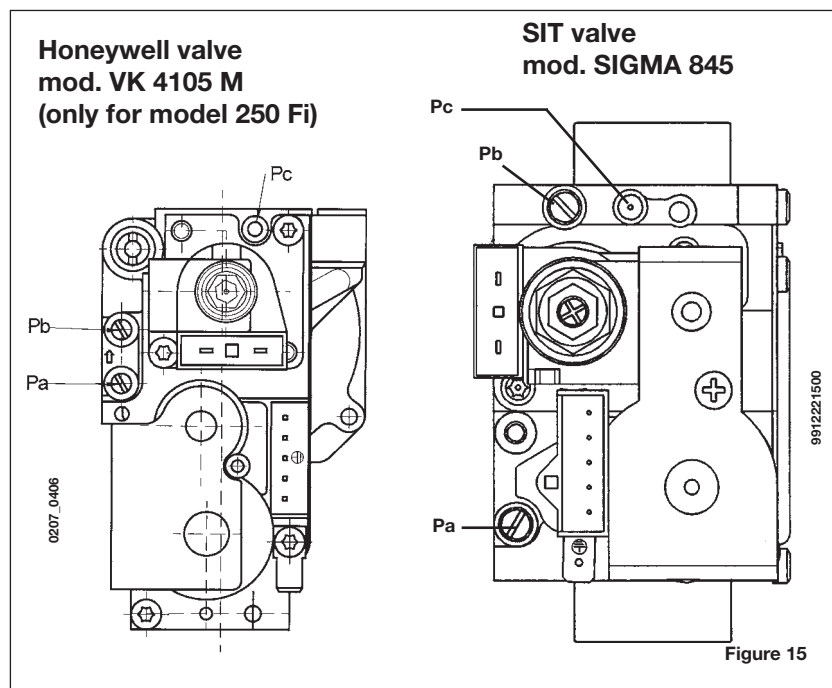



Figure 15

### C1) adjustment to nominal heat output:

- open the gas tap;
- press  (figure 1) and switch the boiler to the winter mode;
- open a hot water tap that can provide a flow rate of at least **10 litres a minute** or make sure there is maximum heat demand;
- make sure that the dynamic inlet pressure of the boiler, measured at the gas valve pressure test point (**Pa**) (Figure 15) is correct (**37 mbar for propane** or **20 mbar for natural gas**).
- remove the modulator cover;
- adjust the brass screw (a) in Fig. 16 until the pressure values shown in Table 1 are obtained;

### C2) adjustment to reduced heat output:

- disconnect the modulator power cable and unscrew the screw (b) in Fig. 16 until a pressure value corresponding to reduced heat output is achieved (see Table 1);
- reconnect the wire;
- mount the modulator cover and seal.

### C3) final checks

- indicate the type of gas and relative settings on the rating plate.

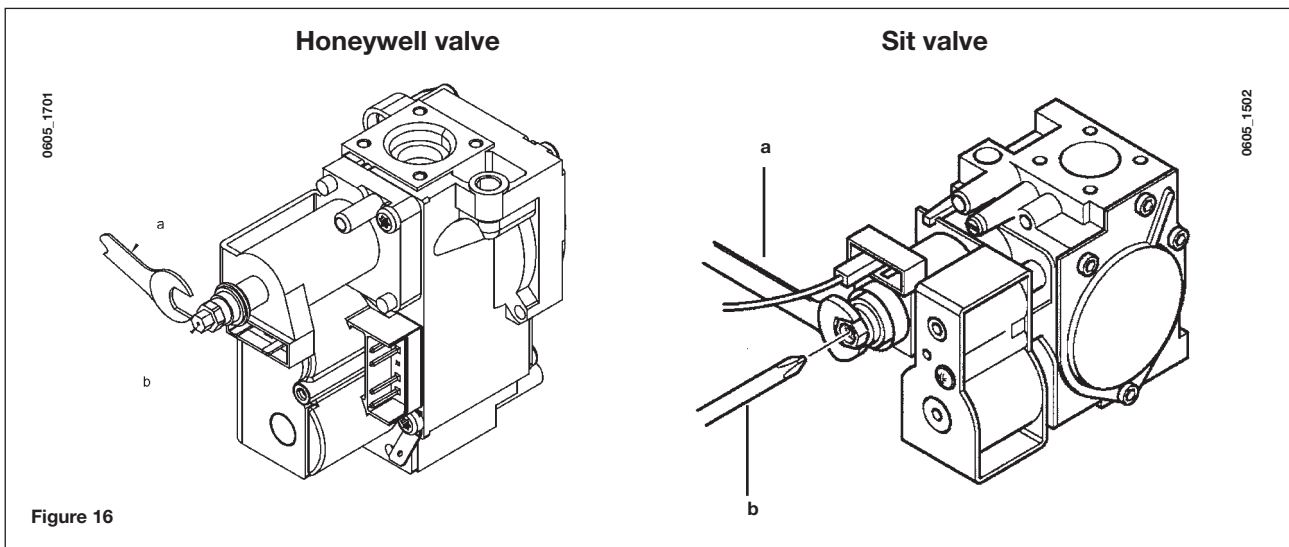


Table of burner injectors

	250 Fi		310 Fi	
	G20	G31	G20	G31
gas type				
diameter of nozzles (mm)	1,18	0,74	1,28	0,77
Burner pressure (mbar*) <b>REDUCED HEAT OUTPUT</b>	1,9	4,9	1,8	4,9
Burner pressure (mbar*) <b>RATED HEAT OUTPUT</b>	11,3	29,4	13,0	35,5
Number of injectors	15			

\* 1 mbar = 10,197 mm H<sub>2</sub>O

Table 1

	250 Fi		310 Fi	
	G20	G31	G20	G31
Consumption 15 °C - 1013 mbar				
Rated heat output	2,84 m <sup>3</sup> /h	2,09 kg/h	3,52 m <sup>3</sup> /h	2,59 kg/h
Reduced heat output	1,12 m <sup>3</sup> /h	0,82 kg/h	1,26 m <sup>3</sup> /h	0,92 kg/h
p.c.i.	34,02 MJ/m <sup>3</sup>	46,3 MJ/kg	34,02 MJ/m <sup>3</sup>	46,3 MJ/kg

Table 2

## 21. INFORMATION AND ADVANCED SETTINGS MODE

To enter the Information and Advanced Settings mode, press **IP** and hold down for at least 3 seconds; access to the mode is confirmed by the moving “**INFO**” message.



To exit, simply press **IP** briefly.

To scroll the information, press **OK**; when the large figures start flashing, the value can be modified by pressing +/- .


### CAUTION

**Communication between the boiler electronic board and the remote control unit is not immediate. In some cases, you may have to wait for a while, depending on the type of information transmitted, before the required command is performed.**

### HEATING CIRCUIT

- “**CH SL**” Maximum CH circuit setpoint, set value with +/- .  
**CAUTION:** press  to change the unit of measurement from °C to °F.
- “**EXT °C**” External temperature (with external probe connected).
- “**CH O>**” Temperature of CH circuit delivery water.
- “**CH R<**” Temperature of CH circuit return water (not fitted).
- “**CH S^**” CH circuit water setpoint.
- “**CH MX**” Maximum CH circuit setpoint.
- “**CH MN**” Minimum CH circuit setpoint.





### DHW CIRCUIT

- “**HW O>**” Temperature of DHW circuit or storage boiler delivery water.
- “**HW S^**” DHW circuit water setpoint. Set value with +/- .
- “**HW MX**” Maximum DHW circuit setpoint
- “**HW MN**” Minimum DHW circuit setpoint

### ADVANCED INFORMATION

- “**PWR %**” Flame power/modulation level (in %).
- “**P BAR**” CH circuit water pressure (in bar).
- “**F L/M**” DHW circuit water outlet flow rate (in litres/min).

### PARAMETER SETTINGS

- “**K REG**” Adjustment constant (0.5..0.90.0) of the temperature of the heating system delivery water (factory setting = 3 - See section 27 - Chart 3).  
Set value with +/- . A high value generates a higher delivery temperature in the heating system. By setting a correct **K REG** adjustment constant, the room temperature remains at the set value regardless of the changes in external temperature.
- “**BUILD**” Adjustment parameter for the size of the building (1..10 - factory setting = 5). Set value with +/- . An elevated value is associated with a building / heating system with elevated heat inertia, vice-versa, a low value is associated with small rooms or systems with low heat inertia (thermoconvectors).
- “**YSELF**” Enables/Disables automatic adjustment of the heating circuit delivery temperature (factory setting = 1). The “**K REG**” constant changes to optimise comfort. 1 means the function is enabled while 0 means it is disabled. This function is operative when the external probe is connected.  
Press +/-  to modify this value.
- “**AMBON**” Enables/Disables the Room Temperature Sensor of the remote control unit (factory setting = 1). 1 means the room temperature sensor is enabled while 0 means it is disabled (factory setting = 1). In these conditions, the temperature control of the rooms depends on the selected boiler delivery temperature (“**CH SL**”).  
If the remote control unit is installed in the boiler, this function must be disabled.  
Press +/-  to modify this value.

**N.B.:** see the table summarising the possible combinations of **AMBON** and **MODUL**.






- **“MODUL”** Enables/Disables modulation of delivery temperature according to room temperature (with the Room Temperature Sensor enabled) and external temperature (if the external sensor is fitted). Factory setting = 1. 1 means delivery setpoint modulation is enabled while 0 means it is disabled.  
Press +/-  to modify this value.  
**N.B.:** see the table summarising the possible combinations of **AMBON** and **MODUL**.

Table summarising the combinations of **AMBON** and **MODUL**

AMBON	MODUL	+/-  FUNCTION
1	1	Room temperature adjustment (modulating delivery temperature)
0	1	With external sensor : KREG curve adjustment Without external sensor : Delivery temperature adjustment calculated. (MODUL = 0 should be set)
0	0	Delivery temperature setpoint adjustment.
1	0	Room temperature adjustment (fixed delivery temperature)



- **“HW PR”** Enables the DHW programmer (0-1-2). Factory setting 1.
  - 0: Disabled
  - 1: Always enabled
  - 2: Enabled with weekly DHW programme (“HW PR” see section 3.7)
- **“NOFR”** Enables/Disables the Boiler Frost protection function (factory setting = 1). 1 means the ambient frost protection function is enabled while 0 means it is disabled.

**CAUTION:** always leave this function enabled (1).

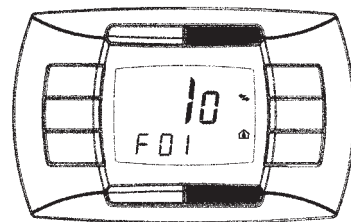
- **“COOL”** Enables/Disables ambient temperature control in summer (factory setting=0). Set this parameter to 1 to enable the function and add a new boiler operating mode, as per section 3.2:  
**SUMMER - WINTER - SUMMER+COOL - HEATING ONLY - OFF**  
To enable the function, press button  repeatedly until the display shows  to the right of the time.  
This function is used to enable the remote control unit to command one or more external conditioning devices (e.g.: air-conditioners) in summer. The boiler relay board therefore enables the external conditioning system when ambient temperature exceeds the temperature value set on the remote control unit.  
During an operating request in this mode  flashes on the display. For relay board connections, see the SERVICE instructions.

## 22. PARAMETER SETTINGS



To set the boiler parameters, proceed as follows:

- press and hold down **IP** for at least three seconds;
- press and hold down  and then press  (see figure to side).

When the function is active on the display, the message “F01” appears together with the value of the selected parameter.



### Change parameters

- To scroll the parameters press **+/-** ;
- To modify individual parameters press **+/-** .

**N.B.:** the value is automatically memorised after approximately 3 seconds. (Do not press any buttons until the setting begins to flash).

	Description of parameters	Factory setting	
		250 Fi	310 Fi
<b>F01</b>	Type of boiler 10= sealed chamber - 20 = open chamber	10	
<b>F02</b>	Type of gas 00 = NATURAL GAS - 01 = LPG	00 or 01	
<b>F03</b>	Hydraulic system 00 = instantaneous appliance 05 = appliance with external storage boiler 08 = appliance for heating only	00	
<b>F04</b>	Programmable relay 1 setting (See SERVICE instructions) 02 = zone system	02	
<b>F05</b>	Programmable relay 2 setting 13: “cool” function for external air-conditioning system (See SERVICE instructions)	03	
<b>F06</b>	External sensor input setting (See SERVICE instructions)	00	
<b>F07</b>	Auxiliary input configuration (See SERVICE instructions)	02	
<b>F08...F12</b>	Manufacturer information	00	
<b>F13</b>	CH max. heat output (0-100%)	100	
<b>F14</b>	DHW max. heat output (0-100%)	100	
<b>F15</b>	CH min. heat output (0-100%)	00	
<b>F16</b>	Maximum temperature setpoint (°C) setting 00 = 85°C - 01 = 45°C	00	
<b>F17</b>	Pump overrun time in CH mode (01-240 minutes)	03	
<b>F18</b>	Burner ignition delay in CH mode (00-10 minutes) - 00=10 seconds	03	
<b>F19</b>	Manufacturer information	07	
<b>F20</b>	Manufacturer information	--	
<b>F21</b>	anti-legionellosis function 00 = Disabled - 01 = Enabled	00	
<b>F22</b>	Manufacturer information	00	
<b>F23</b>	Maximum DHW temperature setpoint (ACS)	60	
<b>F24</b>	Manufacturer information	35	
<b>F25</b>	No water safety device	00	
<b>F26...F29</b>	Manufacturer information (read-only parameters)	--	
<b>F30</b>	Manufacturer information	10	
<b>F31</b>	Manufacturer information	30	
<b>F32...F41</b>	Diagnostics (See SERVICE instructions)	--	
<b>Final parameter</b>	Enable calibration function (See SERVICE instructions)	0	

**Caution: do not change the “manufacturer information” parameters”.**



## 23. ADJUSTMENT AND SAFETY DEVICES

This boiler has been designed in full compliance with European reference standards. In particular, it is fitted with the following:

- **Fumes pressure switch**

This device only allows the burner to ignite if the exhaust flue duct is in perfect working order.

In the event of one or more of the following faults:

- flue terminal obstructed
- venturi tubes obstructed
- fan blocked
- pressure switch tripped

The boiler remains on standby and error code 03E is displayed (see table in section 9).

- **Safety thermostat**

Thanks to a sensor placed on the heating delivery line, the thermostat interrupts the flow of gas to the burner if the water in the primary circuit overheats. In these conditions, the boiler is blocked and only after the fault has been eliminated can it be ignited again (see section 9).

---

It is forbidden to disable this safety device

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- **Flame ionisation detector**

The flame sensing electrode, located on the right-hand side of the burner, guarantees safety of operation in case of gas failure or incomplete ignition of the burner.

In these conditions, the boiler is blocked after 3 ignition attempts.

To reset normal operations, see section 9.

- **Hydraulic pressure switch**

This device allows the main burner to be ignited only if system pressure is higher than 0.5 bars.

- **Pump overrun for heating circuit**

The electronically-controlled pump overrun function lasts 3 minutes (F17 - section 22) and is enabled, in the heating mode, if the ambient thermostat causes the burner to go out.

- **Pump overrun for DHW circuit**

The electronically-controlled pump overrun system keeps lasts 30 seconds and is enabled after the pump stops working in the DHW mode.

- **Frost protection device (heating and DHW systems)**

The electronic boiler management system includes a "frost protection" function for the heating system which, when delivery temperature falls below 5°C, operates the burner until a delivery temperature of 30°C is reached.

- **No water circulating in primary circuit (pump probably jammed or air in system)**

If there is insufficient or no water circulating in the primary circuit, the boiler blocks and the error code 25E is shown on the display (section 9).

- **Pump anti-block function**

If no heat demand is received for 24 consecutive hours, the pump will automatically start and operate for 10 seconds.

This function is operative when the boiler is powered.

- **Three-way anti-blockage valve**

If no heat demand is received for a period of 24 hours, the three-way valve performs a complete switching cycle. This function is operative when the boiler is powered.

- **Hydraulic safety valve (heating circuit)**

This device is set to 3 bar and is used for the heating circuit.

---

Connect the safety valve to a drain trap. Do not use it to drain the heating circuit.

---

**N.B.:** domestic hot water is guaranteed even if the NTC sensor develops a fault. In this case, temperature is controlled by the delivery sensor.

## 24. POSITIONING THE IGNITION AND FLAME-SENSING ELECTRODE

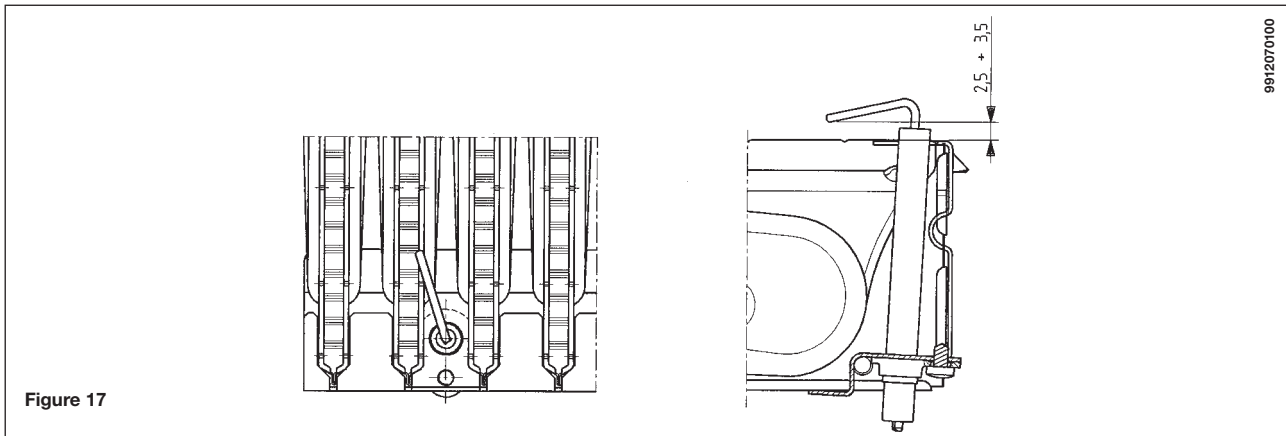


Figure 17

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## 25. CHECKING COMBUSTION PARAMETERS

To measure combustion efficiency and the toxicity of the products of combustion, the boiler is fitted with two dedicated test points.

One test point is connected to the exhaust duct and is used to measure combustion efficiency and the toxicity of the products of combustion.

The other is connected to the air intake duct and is used to check for the presence of any products of combustion circulating in installations with co-axial flues.

The following parameters can be measured using the test point connected to the exhaust duct:

- temperature of the products of combustion;
- concentration of oxygen (O<sub>2</sub>) or, alternatively, carbon dioxide (CO<sub>2</sub>);
- concentration of carbon monoxide (CO).

The temperature of the comburent air must be measured on the test point located on the air intake flue by inserting the measurement sensor by about 3 cm.

For natural draught boiler models, a hole must be made in the exhaust duct at a distance from the boiler equal to twice the internal diameter of the flue.

The following parameters can be measured inside this hole:

- temperature of the products of combustion;
- concentration of oxygen (O<sub>2</sub>) or, alternatively, carbon dioxide (CO<sub>2</sub>);
- concentration of carbon monoxide (CO).

The temperature of the combustion air must be measured close to the point where the air enters the boiler.

The hole, which must be made by the person in charge of the system during commissioning, must be sealed so as to ensure that the exhaust duct is airtight during normal operation.

## 26. PUMP CAPACITY/ HEAD

A high static head pump, suitable for installation on any type of single- or double-pipe heating system, is used. The automatic air valve incorporated in the pump allows quick venting of the heating system.

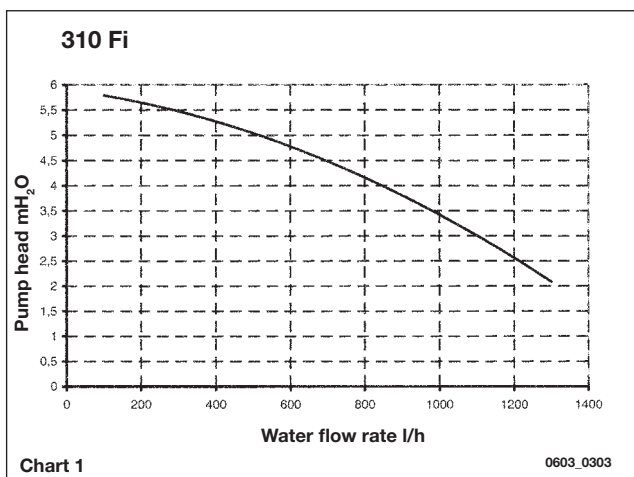


Chart 1

0603\_0303

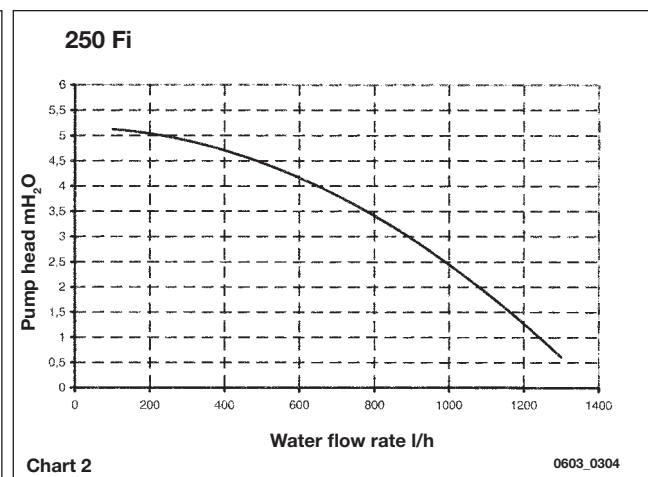


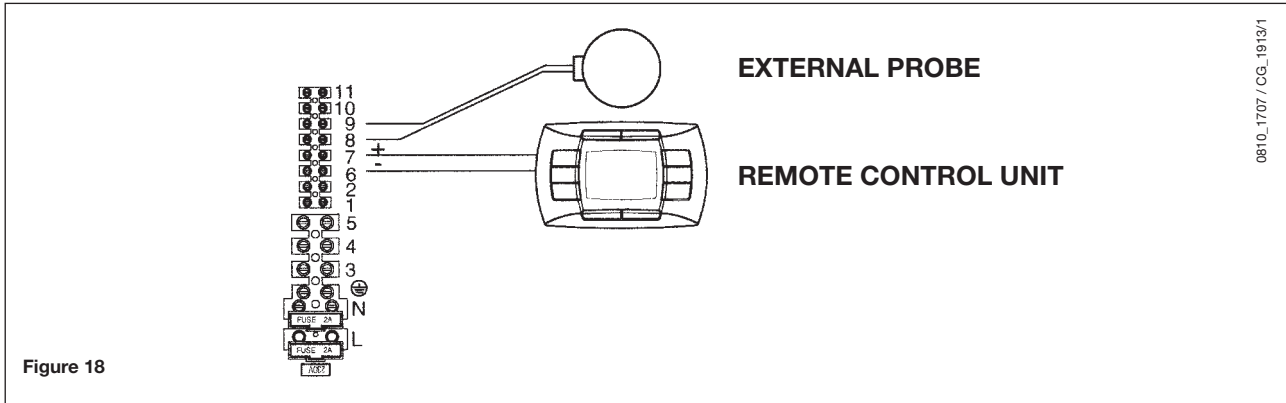
Chart 2

0603\_0304

## 27. CONNECTING THE EXTERNAL PROBE

An external probe, supplied as an accessory, can be connected to the boiler.

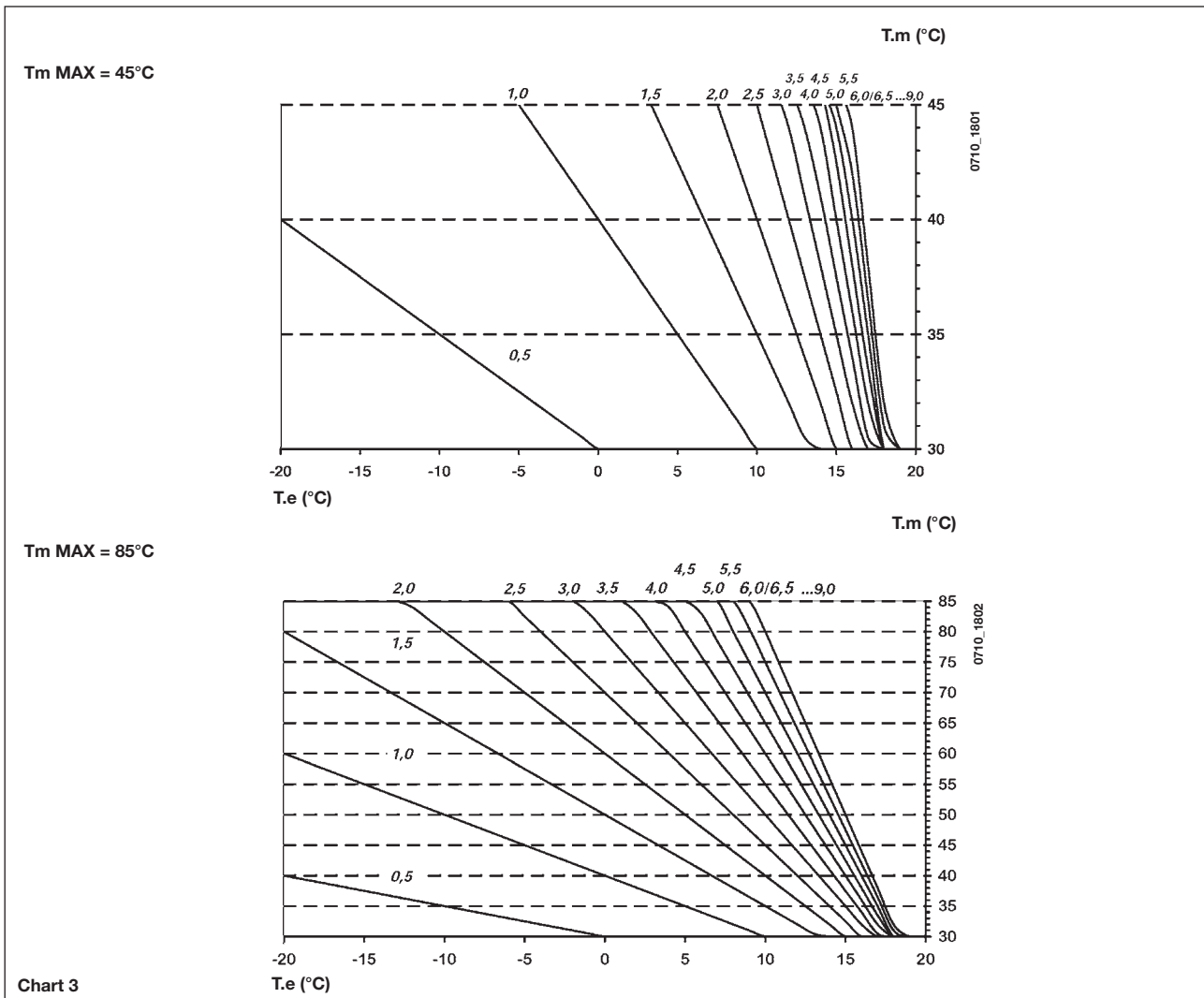
Connect the probe to terminals 8-9 as shown in figure 18 (to access the terminal block see section 18.1)



The climate curve must be chosen by setting parameter “**K REG**” as described under “parameter settings” in section 21. To choose the curve see chart 1. The curve is automatically transferred depending on the room temperature set on the remote control unit.

For zone heating systems, the curve must be set both on the remote control unit and the boiler. The electronic management of the appliance will provide a system delivery temperature equal to that processed by the remote control unit and that processed by the boiler, whichever is highest.

### K REG curves

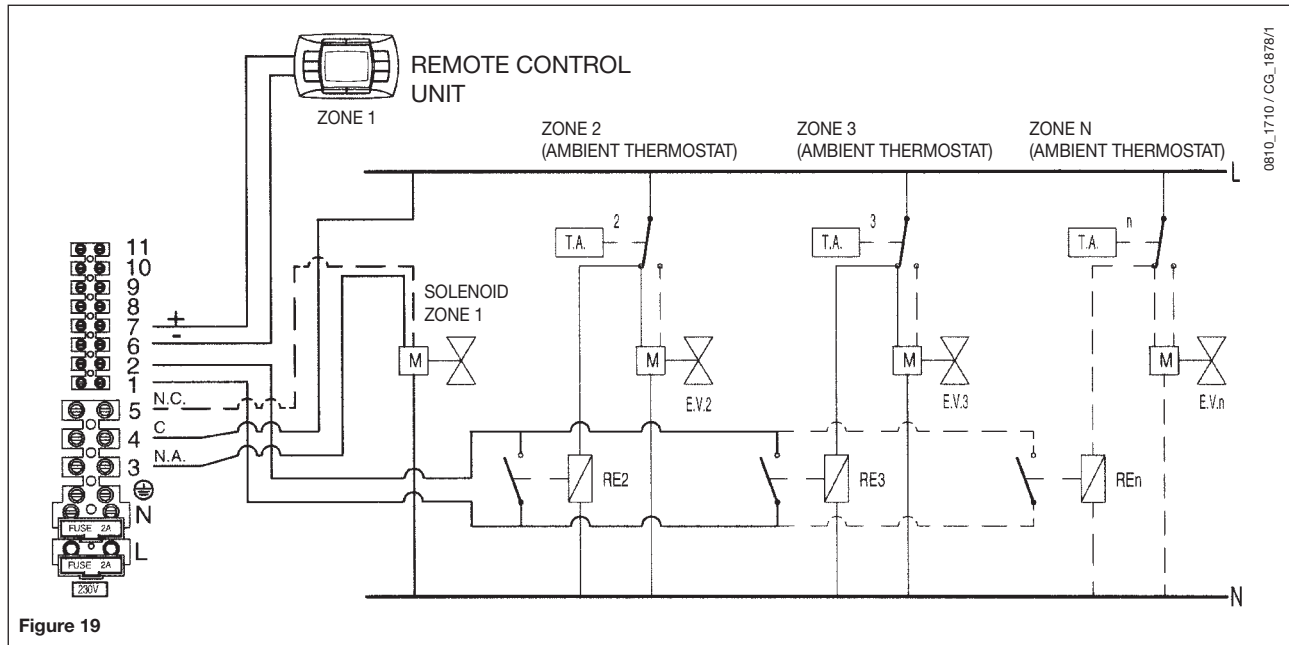


Tm = Delivery temperature  
Te = External temperature

## 28. ELECTRICAL CONNECTIONS TO A ZONE HEATING SYSTEM

Connect the contact relative to heating requests in zones that are not controlled by the remote control device in parallel to terminals 1-2 "TA" on terminal board M1 in figure 19.

The zone controlled by the remote control device is managed by the zone 1 solenoid, as illustrated in figure 19.



## 29. REMOVING SCALE FROM THE DHW CIRCUIT

The DHW circuit can be cleaned without removing the water-water heat exchanger if the assembly is fitted with the special tap (available on request) located on the DHW outlet.

To clean, proceed as follows:

- Turn off the DHW inlet tap
- Drain the DHW system by opening a hot water tap
- Turn off the DHW outlet tap
- Unscrew the two stopcocks
- Remove the filters

If the special tap is not supplied, dismount the water-water heat exchanger, as described in the next section, and clean it separately. Remove the scale from the seat and relative NTC sensor fitted on the DHW circuit.

To clean the exchanger and/or DHW circuit, use Cillit FFW-AL or Benckiser HF-AL.

## 30. DISMOUNTING THE WATER-WATER HEAT EXCHANGER

The stainless steel plate-type water-water heat exchanger is easily disassembled with a screwdriver by operating as described below:

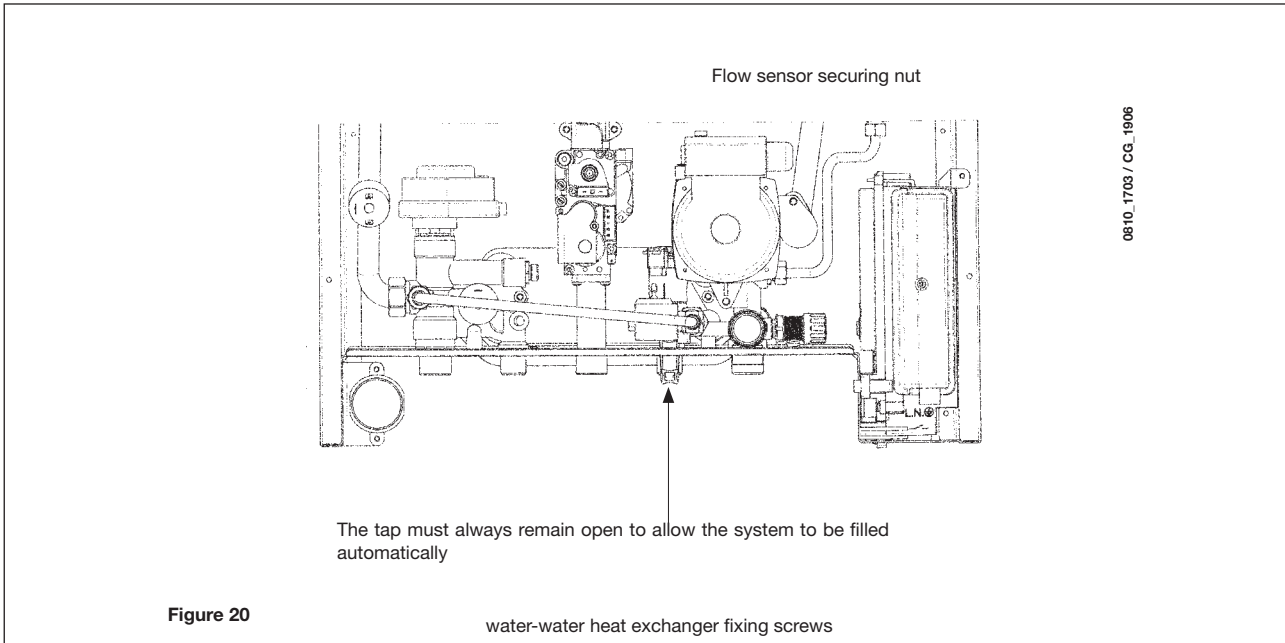
- drain the system, just the boiler if possible, **through the drain tap**;
- drain the DHW system;
- remove the two screws at the front securing the water-water heat exchanger and pull it out (figure 20).

## 31. CLEANING THE COLD WATER FILTER

The boiler is fitted with a cold water filter located on the hydraulic assembly. To clean, proceed as follows:

- Drain the DHW system;
- Unscrew the nut on the flow sensor assembly (figure 20).
- Pull out the flow sensor and its filter.
- Remove any impurities.

**Important:** when replacing and/or cleaning the O-rings on the hydraulic assembly, only use Molykote 111 as a lubricant, not oil or grease.



## 32. ANNUAL MAINTENANCE

To optimise boiler efficiency, carry out the following annual controls:

- check the appearance and airtightness of the gaskets of the gas and combustion circuits;
- check the state and correct position of the ignition and flame-sensing electrodes;
- check the state of the burner and make sure it is firmly fixed;
- check for any impurities inside the combustion chamber.  
Use a vacuum cleaner to do this;
- check the gas valve is correctly calibrated;
- check the pressure of the heating system;
- check the pressure of the expansion vessel;
- check the fan works correctly;
- make sure the flue and air ducts are unobstructed;
- check for any impurities inside the siphon fitted on certain boilers;
- check the magnesium anode, where present, for boilers fitted with storage boilers.

### WARNINGS

**Before commencing any maintenance operations, make sure the boiler is disconnected from the power supply. Afterwards, move the knobs and/or operating parameters of the boiler to their original positions.**

## 33. BOILER DIAGRAM

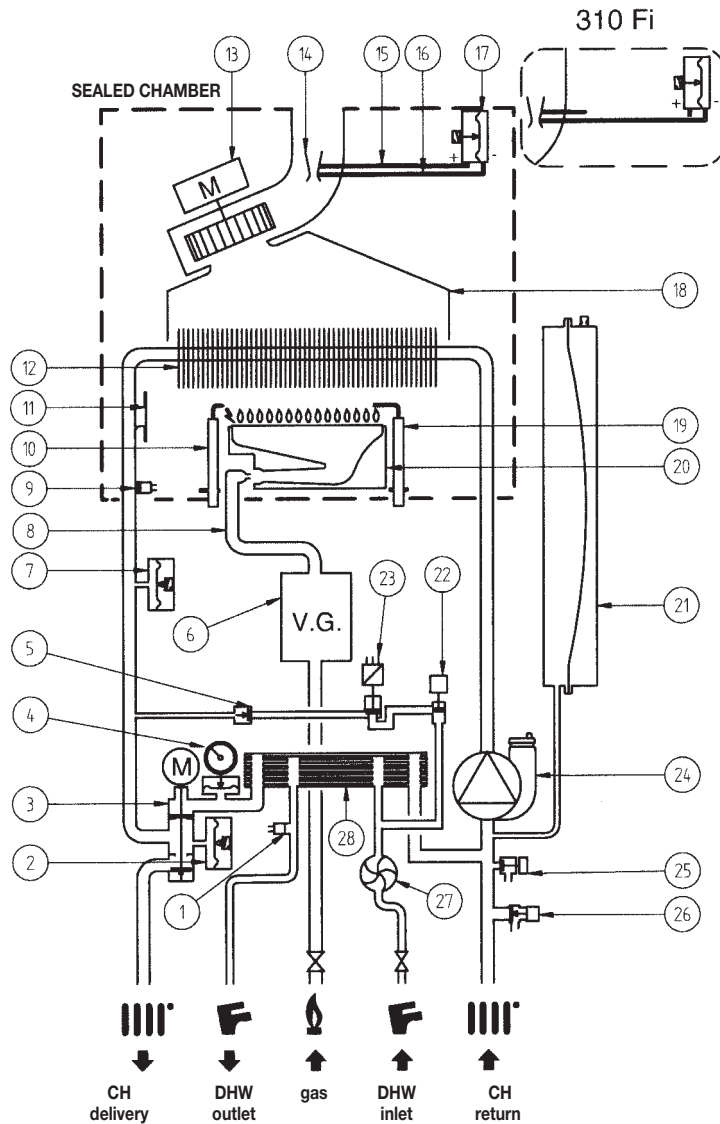
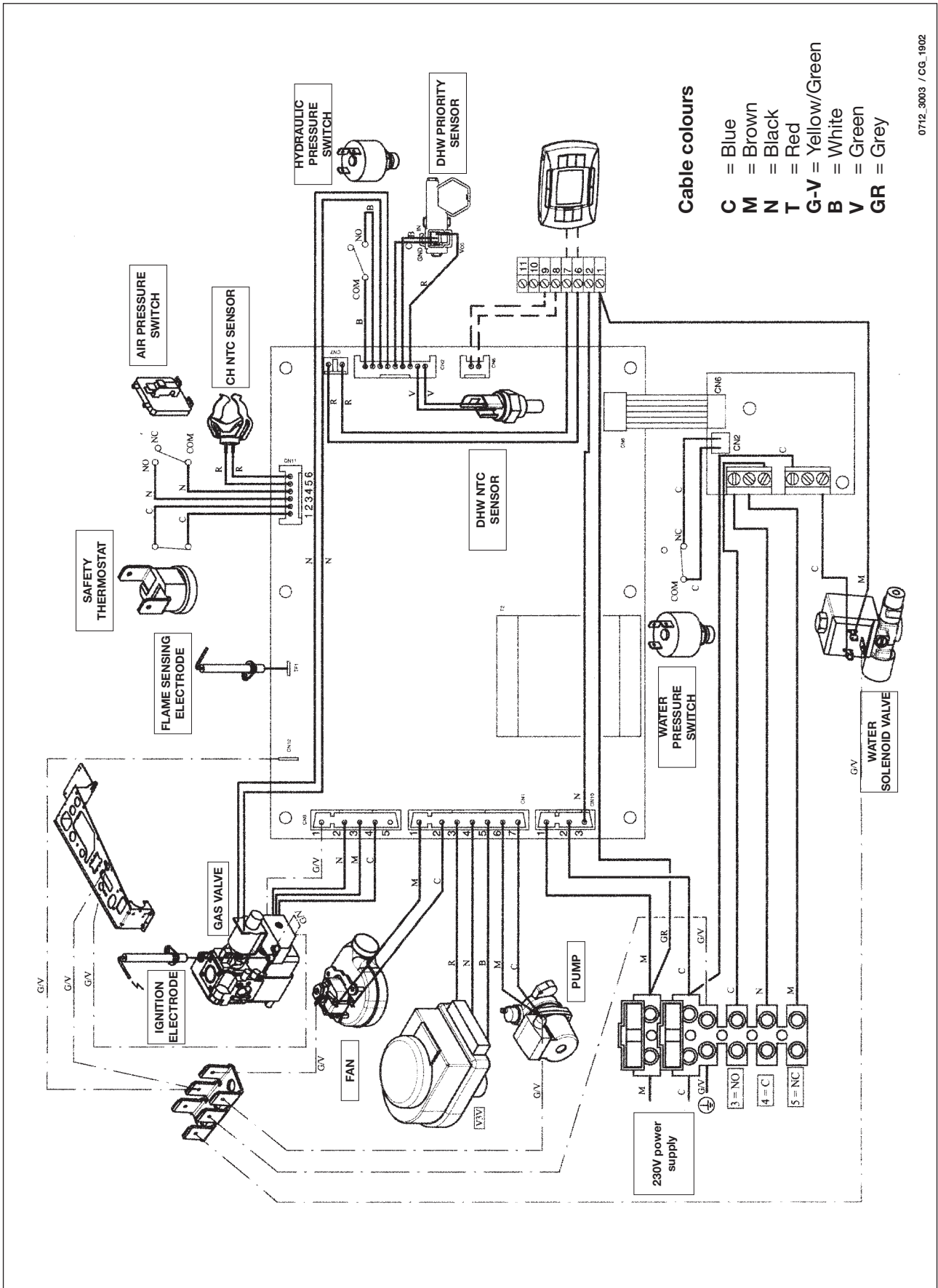


Figure 21

### Legend:

- |                                 |  |
|---------------------------------|--|
| 1 NTC domestic hot water sensor | 15 Positive pressure point<br>(for model 310 Fi the positive pressure test point must be closed) |
| 2 Water pressure switch         | 16 Negative pressure point   |
| 3 Powered three-way valve       | 17 Air pressure switch   |
| 4 Pressure gauge                | 18 Fumes conveyer  |
| 5 Stopcock                      | 19 Flame sensing electrode   |
| 6 Gas valve                     | 20 Burner  |
| 7 Inlet pressure switch         | 21 Expansion vessel  |
| 8 Gas train with injectors      | 22 System filling cock   |
| 9 Central heating NTC sensor    | 23 Inlet electrovalve  |
| 10 Ignition electrode           | 24 Pump and air separator  |
| 11 Safety thermostat            | 25 Boiler drain cock   |
| 12 Water-fumes exchanger        | 26 Water safety valve  |
| 13 Fan                          | 27 DHW priority sensor with water filter and flow limiting device                                |
| 14 Venturi tube                 | 28 Water-water plate heat exchanger  |

# 34. WIRING DIAGRAM



## 35. TECHNICAL DATA

Boiler model LUNA 3 SILVER SPACE			250 Fi	310 Fi
Category			II <sub>2H3P</sub>	II <sub>2H3P</sub>
Rated heat input	kW		26,9	33,3
Reduced heat input	kW		10,6	11,9
Rated heat output	kW		25	31
	kcal/h		21.500	26.700
Reduced heat output	kW		9,3	10,4
	kcal/h		8.000	8.900
Efficiency according to Directive 92/42/EEC	—		★★★	★★★
Max. pressure in central heating system	bar		3	3
Capacity of expansion vessel	l		8	8
Pressure of expansion vessel	bar		0,5	0,5
Max. pressure in DHW system	bar		8	8
Minimum dynamic pressure in DHW system	bar		0,15	0,15
Minimum DHW output	l/min		2,0	2,0
DHW output at $\Delta T=25\text{ }^{\circ}\text{C}$	l/min		14,3	17,8
DHW output at $\Delta T=35\text{ }^{\circ}\text{C}$	l/min		10,2	12,7
Specific output (*)	l/min		11,5	13,7
Type	—		C12 - C32 - C42 - C52 - C82 - B22	
Diameter of concentric flue duct	mm		60	60
Diameter of concentric air duct	mm		100	100
Diameter of 2-pipe flue duct	mm		80	80
Diameter of 2-pipe air duct	mm		80	80
Diameter of flue duct	mm		—	—
Max. flow of fumes (G20)	kg/s		0,017	0,018
Min. flow of fumes (G20)	kg/s		0,017	0,019
Max. temperature of fumes	$^{\circ}\text{C}$		135	145
Min. temperature of fumes	$^{\circ}\text{C}$		100	110
NOx class	—		3	3
Type of gas	—		G20-G31	G20-G31
Natural gas supply pressure 2H (G20)	mbar		20	20
Propane gas supply pressure 3P (G31)	mbar		37	37
Power supply voltage	V		230	230
Power supply frequency	Hz		50	50
Rated electrical input	W		135	165
Net weight	kg		40,5	42,5
Dimensions	height	mm	830	830
	width	mm	550	550
	depth	mm	250	250
Protection against humidity and water penetration (**)	—		IP X5D	IP X5D

(\*) according to EN 625

(\*\*) according to EN 60529

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